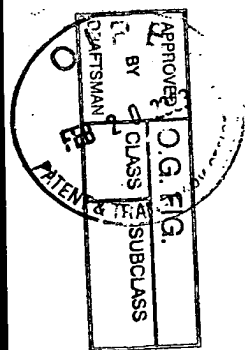


sites: std
length: 4102 (circular)

pleI
hinfi
xhoI sali
paer7I taqI
ecoRI taqI hincII/hindII tru9I
apoI avai accI acII msel
1 GAATTCGGA GTCGACGGCG GCGTTAAAG CTCTCGTGGC ATTATCCTTC AGTGGGCTA TTGGACTGAC TTTTCTTATG CTGGGATGTG CCTTAGAGGA
CTTAAGAGCT CAGCTGCCGC CCGCAATTTC GAGAGCACCG TAATAGGAAG TCACCCCGAT AACCTGACTG AAAAGAATAC GACCTACAC GGAATCTCCT
eco57I
bsli
maeIII
apoI
maeIII
apoI
tru9I
msel
101 TTATGGGTGT ACTTCTCTGA AGTAAGATGA TTGTCAAAA ATTCTGTGTG GTTTTGTTAC ATTGGGAATT TATTTATGTG ATAACTGCGT TTAATTGTG
AATACCCACA TGAAGAGACT TCATCTCTACT AAACAGTTTT TAAGACACAC CAAACAATG TAACCCCTAA ATAAATACAC TATTGACGCA AATGAACAG
M I C Q K F C V L L H W E F I Y V I T A F N L S
1
rsal
csp6I
eco57I
xcmI
styI
bsaI
xcmI
201 ATATCCAATT ACTCCTTGA GATTTAAGTT GTCTTGCATG CCACCAATT CAACCTATGA CTACTTCCIT TTGCCTGCTG GACTCTCAA GAATACTTCA
TATAGGTTAA TGAGGAACTT CTAATTTCAA CAGAACGTAC GGTGGTTAA GGTGGTTAA GATGAAGGAA AACGGACGAC CTGAGAGTTT CTTATGAAGT
26 Y P I T P W R F K L S C M P P N S T Y D Y F L L P A G L S K N T S
apoI
pleI
hinfi
apoI
301 AATTCGAATG GACATTATGA GACAGCTGTT GAACCTAAGT TTAATTCAAG TGGTACTCAC TTTTCTAACT TATCCAAAAC AACTTTCCAC TGTGCTTTC
TTAAGCTTAC CTGTAATACT CTGTGACAA CTGTGACAA CTGTGACAA AATTAAGTTC ACCATGAGTG AAAAGATTGA ATAGGTTTTG TTGAAGGTG ACAACGAAAG
59 N S N G H Y E T A V E P K F N S S G T H F S N L S K T T F H C C F R
apoI
sfanI
401 GGAGTGAGCA AGATAGAAC TGCTCCTTAT GTGACAGCAA CATTGAAGGA AGACATTTG TTCAACAGT TTTTCTTTA GTTTTCAAC AAATAGATGC
CCTCAGCTGT TCTATCTTTG ACGAGGAATA CACGTCGTGT GTAACCTCCT TTCTGTAAC AAAGTTGTCA TTTAAGAAAT CAAAAGTTG TTTATCTACG
93 S E Q D R N C S L C A D N I E G K T F V S T V N S L V F Q Q I D A
apoI
sfanI

FIG. 1A



sau96I
avaII
asuI
xmnI
tfII
hinfi
tru9I
pleI
hinfi
msei
asp700
bsrI
bsmAI
msei
GGCTAAAAGG AGACTTAAAA TTATTCATCT GTTATGTGGA GTCATATT TTCTTAGATA AGTCCTTAAT ATTGATATTC
501 AAACCTGGAAC ATACAGTGCT CCGATTTTCC TCTGAATTTT AATAAGTAGA CAATACACCT CAGTAATAAA S L F K N L F R N Y N Y K
TTTGACCTTG TATGTCACGA
126 N W N I Q C W L K G D L K L F I C Y V E S L F K N L F R N Y N Y K
nlaIII
rcal
bspHI
muni
CTGCAATTGC AGTGTTCATG
eco57I
mboII hphI nlaIV
GCCTGAAGTG TTAGAAGATT CACCTCTGGT TCCCCAAAAA GGCAGTTTTC AGATGGTTCA CTGCAATTGC AGTGTTCATG
601 GTCCATCTTT TATAGTTCT GCGACTTCAC AATCTTCTAA GTGGAGACCA AGGGGTTTT CCGTCAAAAG TCTACCAAGT GACGTTAACG TCACAAGTAC
CAGTAGAGAA ATATACAAGA CGGACTTCAC
159 V H L L Y V L P E V L E D S P L V P Q K G S F Q M V H C N C S V H E
hphI
maeIII
bsrI mnII
TCCAGTCACC
CAGCCAAACT CAACGACACT CTCCTTATGT GTTGAAAAAT CACATCTGGT GGAGTAATTT TCCAGTCACC
701 AATGTTGTGA ATGCTTTGTG CCTGTGGCAA GTCGGTTGA GTTGCTGTGA GAGGAATACA CAACTTTTA GTGTAGACCA CCTCATTAAG AGGTCAGTGG
TTACACACT TACAGAACAC GGACACGGT
193 C C E C L V P V P T A K L N D T L L M C L K I T S G G V I F Q S P
bsII
sau3AI
mboI/ndeII[dam-]
dpnI[dam+]
dpnII[dam-]
alwI[dam-]
hphI
bstXI
bstaATGTC AATGTCAGTGT GAAGCCTGAT CCACCAATTAG GTTGCATAT GGAATCACA GATGATGGTA ATTTAAGAT TTCTTGGTCC
801 TCTAATGTC AATGTCAGTGT GAAGCCTGAT CCACCAATTAG GTTGCATAT GGAATCACA GATGATGGTA ATTTAAGAT TTCTTGGTCC
AGATTACAGT CAAGTCGGT ATTTATACCA CTTCGGACTA GGTGGTAATC CAACGATATA CCTTTAGTGT CTACTACCAT TAAATTTCTA AAGAACCAGG
226 L M S V Q P I N M V K P D P P L G L H M E I T D D G N L K I S W S



nlaiIII
sau3AI
mboI/ndeII[dam-]
dpnI[dam+]
dpnII[dam-]
bclI[dam-] maeIII
bsrI
apoi mnlI apoi mnlI apoi mnlI apoi mnlI apoi mnlI
fokI aluI ddei
mnlI
1201 AAGATTGTTT CCTCAAAAGA GATTGTTTGG TGGATGAATT TAGCTGAGAA AATTCCTCAA AGCCAGTATG ATGTTGTGAG TGATCATGTT AGCAAGTTA
TTCTAACAG GGAGTTTCT CTAACAAACC ACCTACTTAA ATCGACTCTT TTAAGGAGTT TCGGTCAATAC TACAACACTC ACTAGTACAA TCGTTTCAAT
359 K I V P S K E I V W W M N L A E K I P Q S Q Y D V V S D H V S K V T
taqi
xhoI
paer7I
avaI
mnlI mnlI
sfanI
rsal fnu4HI
bsmI
nlaiIII
csp6I bbvI
1301 CTTTTTTC AA ACCAAACCTC GAGGAAAGTT TACCTATGAT GCAGTGACT GCTGCAATGA ACATGAATGC CATCATCGCT ATGCTGAATT
GAAAAAGTT AGACTTACTT TGGTTTGGAG CTCCTTTC AA ATGGATAC TA CGTCACATGA CGACGTTACT TGTACTACG GTAGTAGCGA TAGCACTTAA
393 F F N L N E T K P R G K F T Y D A V Y C C N E H E C H H R Y A E L
rsal
csp6I
tru9I
msei
rsal
bsrI
hincII/hindII
maeIII
bsrI
aciI
nlaiIII
csp6I
1401 ATATGTGATT GATGTCAATA TCAATATCTC ATGTGAAACT GATGGGTACT TAACTAAAAT GACTTGCAGA TGGTCAACCA GTACATCCA GTCACCTGCG
TATACACTAA CTACAGTTAT AGTATAGAG TACACTTTGA CTACCCATGA ATTGATTTTA CTGAACGTTCT ACCAGTTGTT CATGTTAGGT CAGTGAACGC
426 Y V I D V N I N I S C E T D G Y L T K M T C R W S T S T I Q S L A
hgiJII
bsp1286
bmyI
banII
fokI
ddei
fnu4HI
bbvI
munI mnlI
1501 GAAAGCACTT TGCAATTGAG GTATCATAGG AGCAGCCTTT ACTGTTCTGA TATTCATCT ATTCACTCCA TATCTGAGCC CAAAGATTGC TATTGCGAGA
CTTTCGTGAA ACGTTTAACTC CATAGTATCC TCGTCGGAAA TGACAAGACT ATAAGGTAGA TAAGTAGGT ATAGACTCGG GTTCTAACG ATAAACGCT
459 E S T L Q L R Y H R S S L Y C S D I P S I H P I S E P K D C Y L Q S

FIG. 1D



sau3AI
 mboI/ndeII[dam-]
 dpnI[dam+]
 dpnII[dam-]
 alwI[dam-]
 mamI[dam-]
 bsaBI[dam-]
 dralII
 mboII
 bsmI
 nsII/avaIII
 ppulOI
 1601 GTGATGGTT TTATGAATGC ATTTTCCAGC CAATCTTCCT ATTATCTGGC TACACAATGT GGATTAGGAT CAATCACTCT CTAGGTTTAC TTGACTCTCC
 CACTACCAA AATACTTAGG TAAAGGTCG GTTAGAAGGA TAATAGACCG ATGTGTACA CCTAATCCTA GTTACTGAGA GATCCAAGTG AACTGAGAGG
 493 D G F Y E C I F Q P I F L L S G Y T M W I R I N H S L G S L D S P
 ^begin13-2
 nlaIII
 nspI
 nspHI
 aflIII
 tfII
 hinfi
 bphI
 mnlI
 bsrI
 foki
 1701 ACCAATCATGT GTCTTCTCG ATTCTGTGT GAAGCCACTG CCTCATCCA GTGTGAAGC AGAAATTACT ATAAACATTG GATTATTGAA AATATCTTGG
 TGGTTGTACA CAGGAAGGAC TAAGACACCA CTTCGGTGAC GGAGGTAGGT CACACTTTCG TCTTTAATGA TATTTGTAAC CTAATAACTT TTATAGAACC
 526 P T C V L P D S V V K P L P P S S V K A E I T I N I G L L K I S W
 tfII
 hinfi
 xcmI
 bsrI
 1801 GAAAGCCAG TCCTTCCAGA GAATAACCTT CAATTCCAGA TTCGCTATGG TTTAAGTGA AAAGAAGTAC AATGGAAGAT GTATGAGGT TATGATGCAA
 CTTTTCGTC AGAAGGTCT CTTATTGGAA GTTAAGGTCT AAGCGATACC AAATTCACCT TTCTTTCATG TTACCTTCTA CATACTCCA ATACTAGCTT
 559 E K P V F P E N N L Q F Q I R Y G L S G K E V Q W K M Y E V Y D A K
 hinPI
 rmaI
 bsmAI
 bsrI
 1901 AATCAAAATC TGTCACTCTC CCAGTTCCAG ACTTGTGTCG AGTCTATGCT GTTCAGGTGC GCTGTAAGAG GCTAGATGGA CTGGGATATT GGAGTAATTG
 TTAGTTTTAG ACAGTCAGAG GGTCAAGGTC TGAACACAG TCAGATACGA CAAGTCCACG CGACATTCTC CGATCTACCT GACCTATAA CCTCATTAAC
 593 S K S V S L P V P D L C A V Y A V Q V R C K R L D G L G Y W S N W
 sau96I
 avaII
 asuI
 ppulMI
 econI
 ecoO109I/draII
 bsII
 mnlI
 apol
 asei/asnI/vspI
 msel
 tru9I
 2001 GACCAATCCA GCCTACACAG TTGTCTAGGA TATAAAGTT CCTATGAGAG GACCTGAAT TTGGAGAATA ATTAATGGAG ATACTATGAA AAAGGAGAAA
 CTCGTTAGGT CGGATGTGTC AACAGTACCT ATATTTCAA GGATACCTC CTGGACTTAA AACCTCTTAT TAATACCTC TATGATACTT TTCTCTCTT
 626 S N P A Y T V V M D I K V P M R G P E F W R I I N G D T M K K E K

FIG. 1E



maeIII
2101 AATGTCACIT TACITTTGGAA GCGCCTGATG AAAAATGACT CATTTGTCAG TGTTCAGAGA TATGTGATAA ACCATCATAC TTCCTGCAAT GGAACATGGT nlaIII
TTACAGTGAA ATGAAACCTT CGGGGACTAC TTTTACTGA GTAACACGTC ACAAGTCTCT ATACACTATT TGGTAGTAG AAGGACGTTA CCTTGTACCA
659 N V T L L W K P L M K N D S L C S V Q R Y V I N H H T S C N G T W S
pleI
hinfi
maeIII/pali
mscl/bali
haeI
eaeI
maeIII
cfrI
munI
2201 CAGAAGATGT GGGAAATCAC ACGAAATTC A CTTTCCTGTG GACAGAGCAA GCACATACTG TTACGGTTCT GCCCATCAAT TCAATTGGTG CTTCCTGTTGC
GTCTTCTACA CCGTTTAGTG TGCTTTAAGT GAAAGGACAC CTGTCTCGTT CGTGTATGAC AATGCCAAGA CCGGTAGTTA AGTTAACCCAC GAAGACAACG
693 E D V G N H T K F T F L W T E Q A H T V T V L A I N S I G A S V A
apoI
maeIII
2301 AATTTTAAAT TTAACCTTTT CATGGCCTAT GAGCAAAGTA AATATCCTGC AGTCACTCAG TGCTTATCCT TTAACACAGCA GTTGTGTGAT TGTTCCTGCG
TTTAAATTA AATTGGAATA GTACCGGATA CTCGTTTTCAT TTATAGCAGC TCAGTGAGTC ACCAATAGGA AATTGTCTGT CAACACACTA ACAAGGACC
726 N F N L T F S W P M S K V N I V Q S L S A Y P L N S S C V I V S W
bslI
tru9I
tru9I
maeI
apoI
maeI
nlaIII
maeIII
dralII
dralII
dralII
maeIII
tru9I
maeI
ahaII/dral
msei
tru9I
scrFI
mval
ecorII
dsav
bstNI
apyl[dcmt+]
maeIII
2401 ATACTATCAC CCAAGTATTA CAAGCTAATG TATTTTATTA TTGAGTGGAA AAATCTTAAT GAAGATGGTG AAATAAAATG GCTTAGAATC TCTTCATCTG
TATGATAGTG GGTCACTAAT GTTCGATTAC ATAAATAAT AACTCACCTT TTTAGNATTA CTTCTACCAC TTTATTTTAC CGAATCTTAG AGAAGTAGAC
759 I L S P S D Y K L M Y F I I E W K N L N E D G E I K W L R I S S S V
draIII
hphI
bsrI
aluI
tru9I
msei
mboII
hphI
mboII
hphI
dralII
earI/ksp632I
asp700
xmnI
tfii
hinfi
mboII

FIG. 1F



```

sau3AI
mboI/ndeII(dam-)
dpmI(dam+)
dpmII(dam-)
bclII(dam-)
nlaIII
2501 TTAAGAACTA TTATATCCAT GATCATTTTA TCCCATTTGA GAATACACAG TTACAGTCTTT ACCCAATATT TATGGAAGGA GTGGGAAAAC CAAAGATAAT
msei
793 K K Y Y I H D H F I P I E K Y Q F S L Y P I F M E G V G K P K I I
aseI/asnI/vsPI
tru9I
msei
aseI/asnI/vsPI
2601 TAATAGTTTC ACTCAAGATG ATATTGAAA ACACACAGAT GATGCAGGT TATATGTAAT TGTGCCAGTA ATTATTCCT CTTCATCTT ATTGCTTGGA
ATTATCAAG TGAGTTCTAC TATACTTTT TGTGCTCTCA CTACGTCCAA ATATACATTA ACACGGTCAT TAATAAGGA GAAGGTAGAA TAACGAACCT
826 N S F T Q D D I E K H Q S D A G L Y V I V P V I I S S S I L L L G
bspMI
bsfNI
bsrI
mboII
earI/ksp632I
mnlI
bsp1286
bmyI
scrFI
mvaI
ecorII
dsav
bstNI
bsaJI
tru9I
msei
asp700
xnnI
mboII
alul
aseI/asnI/vsPI
2701 ACATTATTA TATCACACCA AAGAATGAAA AAGCTATTTT GGAAGATGT TCCGAACCC AAGAATTGT CCTGGGCACA AGGACTTAA TTTCAGAAGC
TGTAATAAT ATAGTGTGGT TTCTTACTTT TTCGATAAAA CCCTTCTACA AGGCTTGGG TTCTTAACAA GGACCCGTGT TCCTGAATTA AAAGTCTTCG
859 T L L I S H Q R M K K L F W E D V P N P K N C S W A Q G L N F Q K P
nlaIII
nsPI
earI/ksp632I
nsPHI
sau96I
afIII
avaII
eam1105I
mnlI
ecorV
maeII
psp1406I
sfanI
2801 CAGAAACGTT TGAGCATCTT TTTATCAAGC ATACAGCATC AGTACATGT GGTCTCTTC TTTTGGAGCC TGAACCAATT TCAGAAGATA TCAGTCTTGA
GTCTTTGCAA ACTCGTAGAA AATAGTTCG TATGTCGTAG TACTGTACA CCAGGAGAAG AAAACCTCG ACTTTGTAA AGTCTTCTAT AGTCACAACT
893 E T F E H L F I K H T A S V T C G P L L L E P E T I S E D I S V D

```

FIG. 1G



sau3AI
 mboI/ndeII[dam-]
 dpmI[dam+]
 dpmII[dam-]
 bstVI/xhoII
 bglII
 bsmAI
 bsal
 sfaNI
 nlaIII
 2901 TACATCATGG AAAAATAAAG ATGAGATGAT GCCAACAACT GTGGTCTCTC TACTTTCAAC AACAGATCTT GAAAGGGTT CTGTTTGTAT TAGTGACCAG
 ATGAGTAGTACC TTTTATTTC TACTCTACTA CGGTTGTTGA CACCAGAGAG ATGAAAGTTG TTGTCTAGAA CTTTCCCAA GACAAACATA ATCACTGGTC
 926 T S W K N K D E M M P T T V V S L L S T T D L E K G S V C I S D Q
 bsrI
 maeIII
 sau3AI
 mboI/ndeII[dam-]
 dpmI[dam+]
 dpmII[dam-]
 bclI[dam-]
 tru9I
 msel
 hincII/hindII mnlI mnlI csp6I bstEII
 3001 TTCAACAGTG TTAACCTTCTC TGAGGCTGAG GGTACTGAGG TAACCTATGA GGACGAAAGC CAGAGACAA CTTTGTCTAA ATAGGCCACG CTGATCAGCA
 AAGTTGTAC AATTGAAGAG ACTCCGACTC CCATGACTCC ATTGGATACT CCGCTTTTCG GTCTCTGTTG GGAACAAATT TATCGGTGC GACTAGTCGT
 959 F N S V N F S E A E G T E V T Y E D E S Q R Q P F V K Y A T L I S N
 draIII
 hphI
 maeII
 rmaI
 maeI
 apoI
 3101 ACTCTAAACC AAGTGAAGT GGTGAAGAAC AAGGGCTTAT AAATAGTCA GTACCAAGT GCTTCTCTAG CAAAATTCT CCGTTGAAG ATTCTTTCTC
 TGAGATTGG TTCACCTTGA CCACTTCTTG TTCCCGAATA TTATCAAGT CAGTGTCTCA CGAAGAGATC GTTTTAAAG GGAACCTTC TAAGAAAGAG
 993 S K P S E T G E E Q G L I N S S V T K C F S S K N S P L K D S F S
 scrFI
 mval
 ecorII
 dsav
 bstNI
 apyI[dcM+]
 sau96I
 haeIII/palI
 asuI
 nlaIII
 aluI
 mnlI bsaJI
 3201 TAATAGCTCA TGGGAGATAG AGGCCAGGC ATTTTATATA TTATCAGATC AGCATCCCA CATAATTCA CCACCTCA CATCTCAGA AGGATTGGAT
 ATTATCGAGT ACCCTCTATC TCCGGGTCG TAAAAATAT AATAGTCTAG TCGTAGGGT GTATTAAAGT GGTGTGAGT GTAAGAGTCT TCCTAACCTA
 1026 N S S W E I E A Q A F F I L S D Q H P N I I S P H L T F S E G L D
 hphI
 mnlI
 ddeI
 foki
 sau3AI foki
 mboI/ndeII[dam-]
 mamI[dam-]
 dpmI[dam+]
 dpmII[dam-]
 bsaBI[dam-]
 hphI
 mnlI
 ddeI
 foki

FIG. 1H

FIG. 11

[illegible]

4101 TC AG taqI

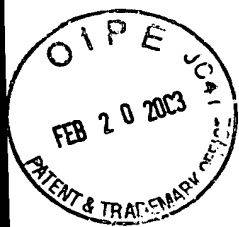
length: 4102

FIG. 17



wsxfull.6.4.variant	1	M	I	C	O	K	F	C	V	V	L	L	H	W	E	F	I	Y	V	I	T	A	F	N	L	S	Y	P	I	T	P	W	R	F	K	L	S	C	M	P	P	N	S	T	Y	D	Y	F	L	L	P
wsxfull.12.1.variant	1	M	I	C	O	K	F	C	V	V	L	L	H	W	E	F	I	Y	V	I	T	A	F	N	L	S	Y	P	I	T	P	W	R	F	K	L	S	C	M	P	P	N	S	T	Y	D	Y	F	L	L	P
wsxfull.13.2.variant	1	M	I	C	O	K	F	C	V	V	L	L	H	W	E	F	I	Y	V	I	T	A	F	N	L	S	Y	P	I	T	P	W	R	F	K	L	S	C	M	P	P	N	S	T	Y	D	Y	F	L	L	P
wsxfull.6.4.variant	51	A	G	L	S	K	N	T	S	N	S	N	G	H	Y	E	T	A	V	E	P	K	F	N	S	S	G	T	H	F	S	N	L	S	K	T	T	F	H	C	C	F	R	S	E	O	D	R	N	C	S
wsxfull.12.1.variant	51	A	G	L	S	K	N	T	S	N	S	N	G	H	Y	E	T	A	V	E	P	K	F	N	S	S	G	T	H	F	S	N	L	S	K	T	T	F	H	C	C	F	R	S	E	O	D	R	N	C	S
wsxfull.13.2.variant	51	A	G	L	S	K	N	T	S	N	S	N	G	H	Y	E	T	A	V	E	P	K	F	N	S	S	G	T	H	F	S	N	L	S	K	T	T	F	H	C	C	F	R	S	E	O	D	R	N	C	S
wsxfull.6.4.variant	101	L	C	A	D	N	I	E	G	K	T	F	V	S	T	V	N	S	L	V	F	Q	I	D	A	N	W	N	I	Q	C	W	L	K	G	D	L	K	L	F	I	C	Y	V	E	S	L	F	K	N	
wsxfull.12.1.variant	101	L	C	A	D	N	I	E	G	K	T	F	V	S	T	V	N	S	L	V	F	Q	I	D	A	N	W	N	I	Q	C	W	L	K	G	D	L	K	L	F	I	C	Y	V	E	S	L	F	K	N	
wsxfull.13.2.variant	101	L	C	A	D	N	I	E	G	K	T	F	V	S	T	V	N	S	L	V	F	Q	I	D	A	N	W	N	I	Q	C	W	L	K	G	D	L	K	L	F	I	C	Y	V	E	S	L	F	K	N	
wsxfull.6.4.variant	151	L	F	R	N	Y	N	Y	K	V	H	L	L	Y	V	L	P	E	V	L	E	D	S	P	L	V	P	Q	K	G	S	F	Q	M	V	H	C	N	C	S	V	H	E	C	C	E	C	L	V	P	V
wsxfull.12.1.variant	151	L	F	R	N	Y	N	Y	K	V	H	L	L	Y	V	L	P	E	V	L	E	D	S	P	L	V	P	Q	K	G	S	F	Q	M	V	H	C	N	C	S	V	H	E	C	C	E	C	L	V	P	V
wsxfull.13.2.variant	151	L	F	R	N	Y	N	Y	K	V	H	L	L	Y	V	L	P	E	V	L	E	D	S	P	L	V	P	Q	K	G	S	F	Q	M	V	H	C	N	C	S	V	H	E	C	C	E	C	L	V	P	V
wsxfull.6.4.variant	201	P	T	A	K	L	N	D	T	L	L	M	C	L	K	I	T	S	G	G	V	I	F	Q	S	P	L	M	S	V	Q	P	I	N	M	V	K	P	D	P	P	L	G	L	H	M	E	I	T	D	D
wsxfull.12.1.variant	201	P	T	A	K	L	N	D	T	L	L	M	C	L	K	I	T	S	G	G	V	I	F	Q	S	P	L	M	S	V	Q	P	I	N	M	V	K	P	D	P	P	L	G	L	H	M	E	I	T	D	D
wsxfull.13.2.variant	201	P	T	A	K	L	N	D	T	L	L	M	C	L	K	I	T	S	G	G	V	I	F	Q	S	P	L	M	S	V	Q	P	I	N	M	V	K	P	D	P	P	L	G	L	H	M	E	I	T	D	D
wsxfull.6.4.variant	251	G	N	L	K	I	S	W	S	S	P	P	L	V	P	F	P	L	Q	Y	Q	V	K	Y	S	E	N	S	T	T	V	I	R	E	A	D	K	I	V	S	A	T	S	L	L	V	D	S	I	L	P
wsxfull.12.1.variant	251	G	N	L	K	I	S	W	S	S	P	P	L	V	P	F	P	L	Q	Y	Q	V	K	Y	S	E	N	S	T	T	V	I	R	E	A	D	K	I	V	S	A	T	S	L	L	V	D	S	I	L	P
wsxfull.13.2.variant	251	G	N	L	K	I	S	W	S	S	P	P	L	V	P	F	P	L	Q	Y	Q	V	K	Y	S	E	N	S	T	T	V	I	R	E	A	D	K	I	V	S	A	T	S	L	L	V	D	S	I	L	P

FIG. 2A



wsxfull.6.4.variant	301	GSSYE VQVRGKRLDGGI WSDWSTPRVFTTQDV IYFPPKILTSVGSNVSF
wsxfull.12.1.variant	301	GSSYE VQVRGKRLDGGI WSDWSTPRVFTTQDV IYFPPKILTSVGSNVSF
wsxfull.13.2.variant	301	GSSYE VQVRGKRLDGGI WSDWSTPRVFTTQDV IYFPPKILTSVGSNVSF
wsxfull.6.4.variant	351	HC IYKKENKIVPSKE I VWWMNLA EKIPQSQYDVVSDHVS KVTFFNLNETK
wsxfull.12.1.variant	351	HC IYKKENKIVPSKE I VWWMNLA EKIPQSQYDVVSDHVS KVTFFNLNETK
wsxfull.13.2.variant	351	HC IYKKENKIVPSKE I VWWMNLA EKIPQSQYDVVSDHVS KVTFFNLNETK
wsxfull.6.4.variant	401	PRGKFTYDAVYCCNEHECHHRYAE L YVIDVNI NISCETDGYLT KMTCRWS
wsxfull.12.1.variant	401	PRGKFTYDAVYCCNEHECHHRYAE L YVIDVNI NISCETDGYLT KMTCRWS
wsxfull.13.2.variant	401	PRGKFTYDAVYCCNEHECHHRYAE L YVIDVNI NISCETDGYLT KMTCRWS
wsxfull.6.4.variant	451	TSTIQSLAESTLQLRYHRSSLYCSDIPSIHP ISEPKDCYLQSDGFFYECIF
wsxfull.12.1.variant	451	TSTIQSLAESTLQLRYHRSSLYCSDIPSIHP ISEPKDCYLQSDGFFYECIF
wsxfull.13.2.variant	451	TSTIQSLAESTLQLRYHRSSLYCSDIPSIHP ISEPKDCYLQSDGFFYECIF
wsxfull.6.4.variant	501	OPIFLLSGYTMMWIRINHSLGSLDSPPTCVLPDSVVKPLPPSSVKAEITIN
wsxfull.12.1.variant	501	OPIFLLSGYTMMWIRINHSLGSLDSPPTCVLPDSVVKPLPPSSVKAEITIN
wsxfull.13.2.variant	501	OPIFLLSGYTMMWIRINHSLGSLDSPPTCVLPDSVVKPLPPSSVKAEITIN
wsxfull.6.4.variant	551	IGLLKISWEKPVFPENNLOFOIRYGLSGKEVQWKMYEVYDAKSKSVSLPV
wsxfull.12.1.variant	551	IGLLKISWEKPVFPENNLOFOIRYGLSGKEVQWKMYEVYDAKSKSVSLPV
wsxfull.13.2.variant	551	IGLLKISWEKPVFPENNLOFOIRYGLSGKEVQWKMYEVYDAKSKSVSLPV

FIG. 2B



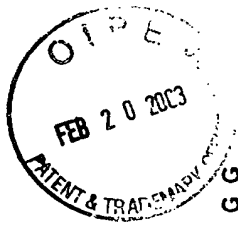
wsxfull.6.4.variant	601	PDLCAVYAVQVRCRRLDGLGYWSNWSNPAYTVVMDIKVPMRGPEFWRIIN
wsxfull.12.1.variant	601	PDLCAVYAVQVRCRRLDGLGYWSNWSNPAYTVVMDIKVPMRGPEFWRIIN
wsxfull.13.2.variant	601	PDLCAVYAVQVRCRRLDGLGYWSNWSNPAYTVVMDIKVPMRGPEFWRIIN
wsxfull.6.4.variant	651	GDTMKKEKNVTLLWKPLMKNDSLCSVORYVINHHHTSCNGTWSDEVGNHTK
wsxfull.12.1.variant	651	GDTMKKEKNVTLLWKPLMKNDSLCSVORYVINHHHTSCNGTWSDEVGNHTK
wsxfull.13.2.variant	651	GDTMKKEKNVTLLWKPLMKNDSLCSVORYVINHHHTSCNGTWSDEVGNHTK
wsxfull.6.4.variant	701	FTFLWTEQAHTVTVLAINSIGASVANFNLTFSWPMKSVNIVQSLSAYPLN
wsxfull.12.1.variant	701	FTFLWTEQAHTVTVLAINSIGASVANFNLTFSWPMKSVNIVQSLSAYPLN
wsxfull.13.2.variant	701	FTFLWTEQAHTVTVLAINSIGASVANFNLTFSWPMKSVNIVQSLSAYPLN
wsxfull.6.4.variant	751	SSCVIVSWILSPSDYKLMYFIEWKNLNEDGEIKWLRISSSSVKKYYIHDIH
wsxfull.12.1.variant	751	SSCVIVSWILSPSDYKLMYFIEWKNLNEDGEIKWLRISSSSVKKYYIHDIH
wsxfull.13.2.variant	751	SSCVIVSWILSPSDYKLMYFIEWKNLNEDGEIKWLRISSSSVKKYYIHDIH
wsxfull.6.4.variant	801	FPIIEKYQFSLYPIMEGVGKPKIINSFTQDDIEKHOSDAGLYVIVPVII
wsxfull.12.1.variant	801	FPIIEKYQFSLYPIMEGVGKPKIINSFTQDDIEKHOSDAGLYVIVPVII
wsxfull.13.2.variant	801	FPIIEKYQFSLYPIMEGVGKPKIINSFTQDDIEKHOSDAGLYVIVPVII
wsxfull.6.4.variant	851	SSSILLGLTLLISHQRMKKLFWEDVPPNPKNCSSWAQGLNFOK
wsxfull.12.1.variant	851	SSSILLGLTLLISHQRMKKLFWEDVPPNPKNCSSWAQGLNFOK
wsxfull.13.2.variant	851	SSSILLGLTLLISHQRMKKLFWEDVPPNPKNCSSWAQGLNFOK

Trans

Box 1

membrane Domain

FIG. 2C



wsxfull.6.4.variant	1	G A A T T C C G G G T T A A A G C T C T C G T G G C A T T A T C C T T C A G T G G G G C T A T T G G
wsxfull.6.4.variant	51	A C T G A C T T T T C T T A T G C T G G G A T G T G C C T T A G A G G A T T A T G G A T T T G C C A
wsxfull.12.1.variant	1 G A A T T C T C G A G T C
wsxfull.13.2.variant	1 G A A T T C T C G A G T C
wsxfull.6.4.variant	101	G T T C A C C C T G A C C A T C T T G A A A T A A G T T A T C T C T G A T C T C T G T C T G T A T
wsxfull.12.1.variant	14	G A C G G C G G G C G T T A A A G C T C T C G T G G C A T T A T C C T T C A G T G G G G C T A T T G
wsxfull.13.2.variant	14	G A C G G C G G G C G T T A A A G C T C T C G T G G C A T T A T C C T T C A G T G G G G C T A T T G
wsxfull.6.4.variant	151	G T T A C T T C T C C C C T C A C C A A T G A G A A C A A T G T G G G C A A A G T G T A C T
wsxfull.12.1.variant	64	G A C T G A C T T T T C T T A T G C T G G G A T G T G C C T T A G A G G A T T A T G G G T G T A C T
wsxfull.13.2.variant	64	G A C T G A C T T T T C T T A T G C T G G G A T G T G C C T T A G A G G A T T A T G G G T G T A C T
wsxfull.6.4.variant	201	T C T C T G A A G T A A G A T G A T T T G T C A A A A A T T C T G T G G T T T T G T T A C A T T
wsxfull.12.1.variant	114	T C T C T G A A G T A A G A T G A T T T G T C A A A A A T T C T G T G G T T T T G T T A C A T T
wsxfull.13.2.variant	114	T C T C T G A A G T A A G A T G A T T T G T C A A A A A T T C T G T G G T T T T G T T A C A T T
wsxfull.6.4.variant	251	G G G A A T T T A T T A T G T G A T A A C T G C G T T T A A C T T G T C A T A T C C A A T T A C T
wsxfull.12.1.variant	164	G G G A A T T T A T T A T G T G A T A A C T G C G T T T A A C T T G T C A T A T C C A A T T A C T
wsxfull.13.2.variant	164	G G G A A T T T A T T A T G T G A T A A C T G C G T T T A A C T T G T C A T A T C C A A T T A C T
wsxfull.6.4.variant	301	C C T T G G A G A T T T A A G T T G T C T T G C A T G C C A C C A A A T T C A A C C T A T G A C T A
wsxfull.12.1.variant	214	C C T T G G A G A T T T A A G T T G T C T T G C A T G C C A C C A A A T T C A A C C T A T G A C T A
wsxfull.13.2.variant	214	C C T T G G A G A T T T A A G T T G T C T T G C A T G C C A C C A A A T T C A A C C T A T G A C T A

FIG. 3A

wsxfull.6.4.variant 351
wsxfull.12.1.variant 264
wsxfull.13.2.variant 264

CTTCCCTTTTGCCCTGCTGGACTCTCAAGAATACTTCAAAATTCGAATGGAC
CTTCCCTTTTGCCCTGCTGGACTCTCAAGAATACTTCAAAATTCGAATGGAC
CTTCCCTTTTGCCCTGCTGGACTCTCAAGAATACTTCAAAATTCGAATGGAC

wsxfull.6.4.variant 401
wsxfull.12.1.variant 314
wsxfull.13.2.variant 314

ATTATGAGACAGCTGTTGAACCTAAGTTTAATTCAAGTGGTACTCACTTT
ATTATGAGACAGCTGTTGAACCTAAGTTTAATTCAAGTGGTACTCACTTT
ATTATGAGACAGCTGTTGAACCTAAGTTTAATTCAAGTGGTACTCACTTT

wsxfull.6.4.variant 451
wsxfull.12.1.variant 364
wsxfull.13.2.variant 364

TCTAACTTATCCAAACAACAACTTCCACTGTTGCTTTCGGAGTGAGCAAGA
TCTAACTTATCCAAACAACAACTTCCACTGTTGCTTTCGGAGTGAGCAAGA
TCTAACTTATCCAAACAACAACTTCCACTGTTGCTTTCGGAGTGAGCAAGA

wsxfull.6.4.variant 501
wsxfull.12.1.variant 414
wsxfull.13.2.variant 414

TAGAAACTGCTCCTTATGTGCAGACAACATTTGAAGGAAGAAGACATTTGTTT
TAGAAACTGCTCCTTATGTGCAGACAACATTTGAAGGAAGAAGACATTTGTTT
TAGAAACTGCTCCTTATGTGCAGACAACATTTGAAGGAAGAAGACATTTGTTT

wsxfull.6.4.variant 551
wsxfull.12.1.variant 464
wsxfull.13.2.variant 464

CNACAGTAAATTCTTTAGTTTTTCAACAATAAGATGCAAACTGGAAACATA
CACAGTAAATTCTTTAGTTTTTCAACAATAAGATGCAAACTGGAAACATA
CACAGTAAATTCTTTAGTTTTTCAACAATAAGATGCAAACTGGAAACATA

wsxfull.6.4.variant 601
wsxfull.12.1.variant 514
wsxfull.13.2.variant 514

CAGTGCTGGCTAAAGGAGACTTAAATTTATTCATCTGTTATGTGGAGTTC
CAGTGCTGGCTAAAGGAGACTTAAATTTATTCATCTGTTATGTGGAGTTC
CAGTGCTGGCTAAAGGAGACTTAAATTTATTCATCTGTTATGTGGAGTTC

FIG. 3B





wsxfull.6.4.variant

651

A T T A T T T A A G A A T C T A T T C A G G A A T T A T A A C T A T A A G G T C C A T C T T T T A T
A T T A T T T A A G A A T C T A T T C A G G A A T T A T A A C T A T A A G G T C C A T C T T T T A T
A T T A T T T A A G A A T C T A T T C A G G A A T T A T A A C T A T A A G G T C C A T C T T T T A T

wsxfull.12.1.variant

564

wsxfull.13.2.variant

564

wsxfull.6.4.variant

701

A T G T T C T G C C T G A A G T G T T A G A A G A T T C A C C T C T G G T T C C C C A A A A A G G C
A T G T T C T G C C T G A A G T G T T A G A A G A T T C A C C T C T G G T T C C C C A A A A A G G C
A T G T T C T G C C T G A A G T G T T A G A A G A T T C A C C T C T G G T T C C C C A A A A A G G C

wsxfull.12.1.variant

614

wsxfull.13.2.variant

614

wsxfull.6.4.variant

751

A G T T T T C A G A T G G T T C A C T G C A A T T G C A G T G T T C A T G A A T G T T G T G A A T G
A G T T T T C A G A T G G T T C A C T G C A A T T G C A G T G T T C A T G A A T G T T G T G A A T G
A G T T T T C A G A T G G T T C A C T G C A A T T G C A G T G T T C A T G A A T G T T G T G A A T G

wsxfull.12.1.variant

664

wsxfull.13.2.variant

664

wsxfull.6.4.variant

801

T C T T G T G C C T G T G C C A A C A G C C A A A C T C A A C G G A C A C T C T C C T T A T G T G T T
T C T T G T G C C T G T G C C A A C A G C C A A A C T C A A C G G A C A C T C T C C T T A T G T G T T
T C T T G T G C C T G T G C C A A C A G C C A A A C T C A A C G G A C A C T C T C C T T A T G T G T T

wsxfull.12.1.variant

714

wsxfull.13.2.variant

714

wsxfull.6.4.variant

851

T G A A A A T C A C A T C T G G T G G A G T A A T T T T C A G T C A C C T C T A A T G T C A G T T
T G A A A A T C A C A T C T G G T G G A G T A A T T T T C A G T C A C C T C T A A T G T C A G T T
T G A A A A T C A C A T C T G G T G G A G T A A T T T T C A G T C A C C T C T A A T G T C A G T T

wsxfull.12.1.variant

764

wsxfull.13.2.variant

764

wsxfull.6.4.variant

901

C A G C C C A T A A A T A T G G T G A A G C C T G A T C C A C C A T T A G G T T T G C A T A T G G A
C A G C C C A T A A A T A T G G T G A A G C C T G A T C C A C C A T T A G G T T T G C A T A T G G A
C A G C C C A T A A A T A T G G T G A A G C C T G A T C C A C C A T T A G G T T T G C A T A T G G A

wsxfull.12.1.variant

814

wsxfull.13.2.variant

814

FIG. 3C



wsxfull.6.4.variant	951	AATCACAGATGATGGTAATTTAAAGATTTCTTGGTCCAGCCCAACCATTTGG
wsxfull.12.1.variant	864	AATCACAGATGATGGTAATTTAAAGATTTCTTGGTCCAGCCCAACCATTTGG
wsxfull.13.2.variant	864	AATCACAGATGATGGTAATTTAAAGATTTCTTGGTCCAGCCCAACCATTTGG
wsxfull.6.4.variant	1001	TACCAATTTCCACTTCAATATCAAGTGAAATATTTCAGAGAAATTCTACAACA
wsxfull.12.1.variant	914	TACCAATTTCCACTTCAATATCAAGTGAAATATTTCAGAGAAATTCTACAACA
wsxfull.13.2.variant	914	TACCAATTTCCACTTCAATATCAAGTGAAATATTTCAGAGAAATTCTACAACA
wsxfull.6.4.variant	1051	GTTATCAGAGAAGCTGACAAAGATTGTCTCAGCTACATCCCTGCTAGTAGA
wsxfull.12.1.variant	964	GTTATCAGAGAAGCTGACAAAGATTGTCTCAGCTACATCCCTGCTAGTAGA
wsxfull.13.2.variant	964	GTTATCAGAGAAGCTGACAAAGATTGTCTCAGCTACATCCCTGCTAGTAGA
wsxfull.6.4.variant	1101	CAGTATACTTCCTGGGTCTTCGTATGAGGTTTCAGGTCAGGGGCAAGAGAC
wsxfull.12.1.variant	1014	CAGTATACTTCCTGGGTCTTCGTATGAGGTTTCAGGTCAGGGGCAAGAGAC
wsxfull.13.2.variant	1014	CAGTATACTTCCTGGGTCTTCGTATGAGGTTTCAGGTCAGGGGCAAGAGAC
wsxfull.6.4.variant	1151	TGGATGGCCCAAGGAATCTGGAGTGACTGGAGTACTCCTCGTCTTTACC
wsxfull.12.1.variant	1064	TGGATGGCCCAAGGAATCTGGAGTGACTGGAGTACTCCTCGTCTTTACC
wsxfull.13.2.variant	1064	TGGATGGCCCAAGGAATCTGGAGTGACTGGAGTACTCCTCGTCTTTACC
wsxfull.6.4.variant	1201	ACACAAGATGTCATATACTTTCCACCCTAAATTTCTGACAAGTGTGGGTCT
wsxfull.12.1.variant	1114	ACACAAGATGTCATATACTTTCCACCCTAAATTTCTGACAAGTGTGGGTCT
wsxfull.13.2.variant	1114	ACACAAGATGTCATATACTTTCCACCCTAAATTTCTGACAAGTGTGGGTCT

FIG. 3D



wsxfull.6.4.variant 1251	T A A T G T T T C T T T T C A C T G C A T C T A T A A G A A G G A A A C A A G A T T G T T C C C T
wsxfull.12.1.variant 1164	T A A T G T T T C T T T T C A C T G C A T C T A T A A G A A G G A A A C A A G A T T G T T C C C T
wsxfull.13.2.variant 1164	T A A T G T T T C T T T T C A C T G C A T C T A T A A G A A G G A A A C A A G A T T G T T C C C T
wsxfull.6.4.variant 1301	C A A A G A G A T T G T T T G G T G G A T G A A T T A G C T G A G A A A A T T C C T C A A A G C
wsxfull.12.1.variant 1214	C A A A G A G A T T G T T T G G T G G A T G A A T T A G C T G A G A A A A T T C C T C A A A G C
wsxfull.13.2.variant 1214	C A A A G A G A T T G T T T G G T G G A T G A A T T A G C T G A G A A A A T T C C T C A A A G C
wsxfull.6.4.variant 1351	C A G T A T G A T G T T G T G A G T G A T C A T G T T A G C A A A G T T A C T T T T T C A A T C T
wsxfull.12.1.variant 1264	C A G T A T G A T G T T G T G A G T G A T C A T G T T A G C A A A G T T A C T T T T T C A A T C T
wsxfull.13.2.variant 1264	C A G T A T G A T G T T G T G A G T G A T C A T G T T A G C A A A G T T A C T T T T T C A A T C T
wsxfull.6.4.variant 1401	G A A T G A A A C C A A A C C T C G A G G A A A G T T T A C C T A T G A T G C A G T G T A C T G C T
wsxfull.12.1.variant 1314	G A A T G A A A C C A A A C C T C G A G G A A A G T T T A C C T A T G A T G C A G T G T A C T G C T
wsxfull.13.2.variant 1314	G A A T G A A A C C A A A C C T C G A G G A A A G T T T A C C T A T G A T G C A G T G T A C T G C T
wsxfull.6.4.variant 1451	G C A A T G A A C A T G A A T G C C A T C A T C G C T A T G C T G A A T T A T A T G T G A T T G A T
wsxfull.12.1.variant 1364	G C A A T G A A C A T G A A T G C C A T C A T C G C T A T G C T G A A T T A T A T G T G A T T G A T
wsxfull.13.2.variant 1364	G C A A T G A A C A T G A A T G C C A T C A T C G C T A T G C T G A A T T A T A T G T G A T T G A T
wsxfull.6.4.variant 1501	G T C A A T A T C A A T A T C T C A T G T G A A A C T G A T G G G T A C T T A A C T A A A A T G A C
wsxfull.12.1.variant 1414	G T C A A T A T C A A T A T C T C A T G T G A A A C T G A T G G G T A C T T A A C T A A A A T G A C
wsxfull.13.2.variant 1414	G T C A A T A T C A A T A T C T C A T G T G A A A C T G A T G G G T A C T T A A C T A A A A T G A C

FIG. 3E



wsxfull.6.4.variant 1551	T T G C A G A T G G T C A A C C A G T A C A A T C C A G T C A C T T G C G G A A A G C A C T T T G C
wsxfull.12.1.variant 1464	T T G C A G A T G G T C A A C C A G T A C A A T C C A G T C A C T T G C G G A A A G C A C T T T G C
wsxfull.13.2.variant 1464	T T G C A G A T G G T C A A C C A G T A C A A T C C A G T C A C T T G C G G A A A G C A C T T T G C
wsxfull.6.4.variant 1601	A A T T G A G G T A T C A T A G G A G C A G C C T T T A C T G T T C T G A T A T T C C A T C T A T T
wsxfull.12.1.variant 1514	A A T T G A G G T A T C A T A G G A G C A G C C T T T A C T G T T C T G A T A T T C C A T C T A T T
wsxfull.13.2.variant 1514	A A T T G A G G T A T C A T A G G A G C A G C C T T T A C T G T T C T G A T A T T C C A T C T A T T
wsxfull.6.4.variant 1631	C A T C C C A T A T C T G A G C C C A A A G A T T G C T A T T T G C A G A G T G A T G G T T T T A
wsxfull.12.1.variant 1564	C A T C C C A T A T C T G A G C C C A A A G A T T G C T A T T T G C A G A G T G A T G G T T T T A
wsxfull.13.2.variant 1564	C A T C C C A T A T C T G A G C C C A A A G A T T G C T A T T T G C A G A G T G A T G G T T T T A
wsxfull.6.4.variant 1701	T G A A T G C A T T T T C C A G C C A A T C T T C C T A T T A T C T G G C T A C A C A A T G T G G A
wsxfull.12.1.variant 1614	T G A A T G C A T T T T C C A G C C A A T C T T C C T A T T A T C T G G C T A C A C A A T G T G G A
wsxfull.13.2.variant 1614	T G A A T G C A T T T T C C A G C C A A T C T T C C T A T T A T C T G G C T A C A C A A T G T G G A
wsxfull.6.4.variant 1751	T T A G G A T C A A T C A C T C T C T A G G T T C A C T T G A C T C T C C A C C A A C A T G T G T C
wsxfull.12.1.variant 1664	T T A G G A T C A A T C A C T C T C T A G G T T C A C T T G A C T C T C C A C C A A C A T G T G T C
wsxfull.13.2.variant 1664	T T A G G A T C A A T C A C T C T C T A G G T T C A C T T G A C T C T C C A C C A A C A T G T G T C
wsxfull.6.4.variant 1801	C T T C C T G A T T C T G T G G T G A A G C C A C T G C C T C C A T C C A G T G T G A A A G C A G A
wsxfull.12.1.variant 1714	C T T C C T G A T T C T G T G G T G A A G C C A C T G C C T C C A T C C A G T G T G A A A G C A G A
wsxfull.13.2.variant 1714	C T T C C T G A T T C T G T G G T G A A G C C A C T G C C T C C A T C C A G T G T G A A A G C A G A

FIG. 3F



wsxfull.6.4.variant 1851

AATTACTATAACATTGGATTATTGAAATAATCTTGGGAAAGCCAGTCT
AATTACTATAACATTGGATTATTGAAATAATCTTGGGAAAGCCAGTCT
AATTACTATAACATTGGATTATTGAAATAATCTTGGGAAAGCCAGTCT

wsxfull.12.1.variant 1764

wsxfull.13.2.variant 1764

wsxfull.6.4.variant 1901

wsxfull.12.1.variant 1814

wsxfull.13.2.variant 1814

TTCCAGAGAAATAACCTTCAATTCAGATTTCGGCTATGGTTTAAGTGGAAAA
TTCCAGAGAAATAACCTTCAATTCAGATTTCGGCTATGGTTTAAGTGGAAAA
TTCCAGAGAAATAACCTTCAATTCAGATTTCGGCTATGGTTTAAGTGGAAAA

wsxfull.6.4.variant 1951

wsxfull.12.1.variant 1864

wsxfull.13.2.variant 1864

GAAGTACAATGGGAAGATGTATGAGGTTTATGATGCAAAATCAAAATCTGT
GAAGTACAATGGGAAGATGTATGAGGTTTATGATGCAAAATCAAAATCTGT
GAAGTACAATGGGAAGATGTATGAGGTTTATGATGCAAAATCAAAATCTGT

wsxfull.6.4.variant 2001

wsxfull.12.1.variant 1914

wsxfull.13.2.variant 1914

CAGTCTCCCAGTTCAGACTTGTGTGCACTCTATGCTGTTCAAGGTGCGCT
CAGTCTCCCAGTTCAGACTTGTGTGCACTCTATGCTGTTCAAGGTGCGCT
CAGTCTCCCAGTTCAGACTTGTGTGCACTCTATGCTGTTCAAGGTGCGCT

wsxfull.6.4.variant 2051

wsxfull.12.1.variant 1964

wsxfull.13.2.variant 1964

GTAAAGAGGCTAGATGGACTGGGATATTGGAGTAATTGGAGCAATCCAGCC
GTAAAGAGGCTAGATGGACTGGGATATTGGAGTAATTGGAGCAATCCAGCC
GTAAAGAGGCTAGATGGACTGGGATATTGGAGTAATTGGAGCAATCCAGCC

wsxfull.6.4.variant 2101

wsxfull.12.1.variant 2014

wsxfull.13.2.variant 2014

TACACAGTTGTTCATGGATATAAAGTTCCCTATGAGAGGACCTGAATTTG
TACACAGTTGTTCATGGATATAAAGTTCCCTATGAGAGGACCTGAATTTG
TACACAGTTGTTCATGGATATAAAGTTCCCTATGAGAGGACCTGAATTTG

FIG. 3G



wsxfull.6.4.variant 2151

GAGAAATAATTAATGGAGATACTATGAATAAGGAGAAATAATGTCACCTTTAC

wsxfull.12.1.variant 2064

GAGAAATAATTAATGGAGATACTATGAATAAGGAGAAATAATGTCACCTTTAC

wsxfull.13.2.variant 2064

GAGAAATAATTAATGGAGATACTATGAATAAGGAGAAATAATGTCACCTTTAC

wsxfull.6.4.variant 2201

TTTGGAGAGCCCTGATGAATAAATGACTCATTTGTGCAGTGTTCAGAGATAT

wsxfull.12.1.variant 2114

TTTGGAGAGCCCTGATGAATAAATGACTCATTTGTGCAGTGTTCAGAGATAT

wsxfull.13.2.variant 2114

TTTGGAGAGCCCTGATGAATAAATGACTCATTTGTGCAGTGTTCAGAGATAT

wsxfull.6.4.variant 2251

GTGATAAACCATCATACTTCCCTGCAATGGAAACATGGTCAAGAGATGTGGG

wsxfull.12.1.variant 2164

GTGATAAACCATCATACTTCCCTGCAATGGAAACATGGTCAAGAGATGTGGG

wsxfull.13.2.variant 2164

GTGATAAACCATCATACTTCCCTGCAATGGAAACATGGTCAAGAGATGTGGG

wsxfull.6.4.variant 2301

AAATCACACGAAATTTCACCTTTCCTGTGGACAGAGCAAGCACATACTGTTA

wsxfull.12.1.variant 2214

AAATCACACGAAATTTCACCTTTCCTGTGGACAGAGCAAGCACATACTGTTA

wsxfull.13.2.variant 2214

AAATCACACGAAATTTCACCTTTCCTGTGGACAGAGCAAGCACATACTGTTA

wsxfull.6.4.variant 2351

CGGTTCTGGCCCATCAATTCAATTGGTGCTTCTGTTGCAAAATTTTAATTTA

wsxfull.12.1.variant 2264

CGGTTCTGGCCCATCAATTCAATTGGTGCTTCTGTTGCAAAATTTTAATTTA

wsxfull.13.2.variant 2264

CGGTTCTGGCCCATCAATTCAATTGGTGCTTCTGTTGCAAAATTTTAATTTA

wsxfull.6.4.variant 2401

ACCTTTTTCATGGCCCTATGAGCAAAAGTAAATATCGTGCAGTCAGTGC

wsxfull.12.1.variant 2314

ACCTTTTTCATGGCCCTATGAGCAAAAGTAAATATCGTGCAGTCAGTGC

wsxfull.13.2.variant 2314

ACCTTTTTCATGGCCCTATGAGCAAAAGTAAATATCGTGCAGTCAGTGC

FIG. 3H



wsxfull.6.4.variant 2451

TTATCCCTTTAAACAGCAGTTGTGTGATTTGTTTCCCTGGATACTATCACCCCA

wsxfull.12.1.variant 2364

TTATCCCTTTAAACAGCAGTTGTGTGATTTGTTTCCCTGGATACTATCACCCCA

wsxfull.13.2.variant 2364

TTATCCCTTTAAACAGCAGTTGTGTGATTTGTTTCCCTGGATACTATCACCCCA

wsxfull.6.4.variant 2501

GTGATTACAAGCTAATGTATTTTATTATTGAGTGGAAAAATCTTAATGAAG

wsxfull.12.1.variant 2414

GTGATTACAAGCTAATGTATTTTATTATTGAGTGGAAAAATCTTAATGAAG

wsxfull.13.2.variant 2414

GTGATTACAAGCTAATGTATTTTATTATTGAGTGGAAAAATCTTAATGAAG

wsxfull.6.4.variant 2551

GATGGTGAAATAAATGGCTTAGAATCTCTCTTCATCTGTTAAGAAGTATTA

wsxfull.12.1.variant 2464

GATGGTGAAATAAATGGCTTAGAATCTCTCTTCATCTGTTAAGAAGTATTA

wsxfull.13.2.variant 2464

GATGGTGAAATAAATGGCTTAGAATCTCTCTTCATCTGTTAAGAAGTATTA

wsxfull.6.4.variant 2601

TATCCATGATCATTTTATCCCCCATTTGAGAAAGTACCAAGTTCAGTCTTTACCC

wsxfull.12.1.variant 2514

TATCCATGATCATTTTATCCCCCATTTGAGAAAGTACCAAGTTCAGTCTTTACCC

wsxfull.13.2.variant 2514

TATCCATGATCATTTTATCCCCCATTTGAGAAAGTACCAAGTTCAGTCTTTACCC

wsxfull.6.4.variant 2651

CAATATTTATGGGAAGGAGTGGGAATAACCAAGATAATTAAATAGTTTCACT

wsxfull.12.1.variant 2564

CAATATTTATGGGAAGGAGTGGGAATAACCAAGATAATTAAATAGTTTCACT

wsxfull.13.2.variant 2564

CAATATTTATGGGAAGGAGTGGGAATAACCAAGATAATTAAATAGTTTCACT

wsxfull.6.4.variant 2701

CAAGATGATATTGAAAAAACACCCAGAGTGATGCGAGGTTTATATGTAAATTGT

wsxfull.12.1.variant 2614

CAAGATGATATTGAAAAAACACCCAGAGTGATGCGAGGTTTATATGTAAATTGT

wsxfull.13.2.variant 2614

CAAGATGATATTGAAAAAACACCCAGAGTGATGCGAGGTTTATATGTAAATTGT

FIG. 3I



wsxfull.6.4.variant 2751	G C C A G T A A T T A T T T C C C T C T T C C A T C T T A T T G C T T G G A A C A T T A T T A A T A T
wsxfull.12.1.variant 2664	G C C A G T A A T T A T T T C C C T C T T C C A T C T T A T T G C T T G G A A C A T T A T T A A T A T
wsxfull.13.2.variant 2664	G C C A G T A A T T A T T T C C C T C T T C C A T C T T A T T G C T T G G A A C A T T A T T A A T A T
wsxfull.6.4.variant 2801	C A C A C C A A A G A A T G A A A A A G C T A T T T T G G G A A G A T G T T C C G A A C C C C A A G
wsxfull.12.1.variant 2714	C A C A C C A A A G A A T G A A A A A G C T A T T T T G G G A A G A T G T T C C G A A C C C C A A G
wsxfull.13.2.variant 2714	C A C A C C A A A G A A T G A A A A A G C T A T T T T G G G A A G A T G T T C C G A A C C C C A A G
wsxfull.6.4.variant 2851	A A T T G T T C C C T G G G C A C A A G G A C T T A A T T T T C A G A A G A G A C G G A C A T T C T
wsxfull.12.1.variant 2764	A A T T G T T C C C T G G G C A C A A G G A C T T A A T T T T C A G A A G A T G T T C C G A A C C C C
wsxfull.13.2.variant 2764	A A T T G T T C C C T G G G C A C A A G G A C T T A A T T T T C A G A A G C C A G A A A C G T T T G A
wsxfull.6.4.variant 2901	T T G A A G T C T A A T C A T G A T C A C T A C A G A T G A A C C C A A T G T G C C A A C T T C C C
wsxfull.12.1.variant 2814	A A G A A T T G T T C C C T G G G C A C A A G G A C T T A A T T T T C A G A A G A T G C T T G A A G G
wsxfull.13.2.variant 2814	G C A T C T T T T A T C A A G C A T A C A G C A T C A G T G A C A T G T G G T C C T C T T C T T
wsxfull.6.4.variant 2951	A A C A G T C T A T A G A G T A T T A G A G A T T T T T A C A T T T T G A A G A A G G C C G G A
wsxfull.12.1.variant 2864	C A G C A T G T T C G T T A A G A G T C A T C A C C A C T C C C T A A T C T C A A G T A C C C A G G
wsxfull.13.2.variant 2864	T G G A G C C T G A A C A A T T T C A G A A G A T A T C A G T G T T G A T A C A T C A T G G A A A
wsxfull.6.4.variant 3001	A T T C
wsxfull.12.1.variant 2914	G A C A C A A C A C T G C C G G A A G G C C A C A G G T C C T C T G C A T A G G A A A C C A G A
wsxfull.13.2.variant 2914	A A T A A A G A T G A G A T G A T G C C A A C A A C T G T G T C T C T A C T T C A C A C A C

FIG. 3J

FIG. 3K



wsxfull.13.2.variant 3514 TTAGGAACCTTCTAGTAAGAAAGACTTTTGCATCTTACATGCCCTCAATTCCA
wsxfull.13.2.variant 3564 AACTTGTTCCTACTCAGACTCATAGATCATGGAAACAAGATGTGTGACC
wsxfull.13.2.variant 3614 TAACTGTGTAAATTCACCTGAAGAAACCTTCAGATTTGTGTTATAATGGGT
wsxfull.13.2.variant 3664 AATATAAGTGTAATAGATTATAGTTGTGGTGAGAGAGAAAGAAAC
wsxfull.13.2.variant 3714 CAGAGTCAAAATTTGAAATAATTGTTCCAAATGAATGTTGTCTGTTTGT
wsxfull.13.2.variant 3764 CTCCTCTTAGTAACATAGACAAATAATTGAGAAAGCCTTCATAAGCCTAC
wsxfull.13.2.variant 3814 CAATGTAGACACGCTCTCTATTATTATTTCCCAAGCTCTAGTGGGAAGGTC
wsxfull.13.2.variant 3864 CCTTGTTTCCAGCTAGAAATAAGCCCAACAGACACCATCTTTTGTGAGAT
wsxfull.13.2.variant 3914 GTAAATTTTTCAGAGGGCGTGTTGTTTACCTCAAGTTTGTGTTT
wsxfull.13.2.variant 3964 TACCAACACACACACACACATTCCTTAACACATGTCCCTGTGTGTTT
wsxfull.13.2.variant 4014 TGAGAGTATATTATGTATTATTATTGTGCTATCAGACTGTAGGATTG
wsxfull.13.2.variant 4064 AGTAGGACTTTCCTAAATGTTTAAGATAAACAGAAATTC

FIG. 3L



1 M I C Q K F C V V L L H W E F I Y V I T A F N L S Y P I T P W R F K L S C M P P N S T Y D Y F L L P
1 M M C Q K F Y V V L L H W E F L Y V I A A L N L A Y P I S P W K F K L F C G P P N T T D D S F L S P

wsxfull.13.2.variant
mu.wsx.ecd

51 A G L S K N T S N S N G H Y E T A V E P K F N S S G T H F S N L S K T T F H C C F R S E Q D R N C S
51 A G A P N N A S A L K G A S E A I V E A K F N S S G I Y V P E L S K T V F H C C F G N E O G O N C S

wsxfull.13.2.variant
mu.wsx.ecd

101 L C A D N I E G K T F V S T V N S L V F Q Q I D A N W N I O C W L K G D L K L F I C Y V E S L F K N
101 A L T D N T E G K T L A S V V K A S V F R Q L G V N W D I E C W M K G D L T L F I C H M E P L P K N

wsxfull.13.2.variant
mu.wsx.ecd

151 L F R N Y N Y K V H L L Y V L P E V L E D S P L V P O K G S F O M V H C N C S V H E C C E C L V P V
151 P F K N Y D S K V H L L Y D L P E V I D D S P L P P L K D S F Q T V Q C N C S L R G - C E C H V P V

wsxfull.13.2.variant
mu.wsx.ecd

201 P T A K L N D T L L M C L K I T S G G V I I F Q S P L M S V O P I N M V K P D P P L G L H M E I T D D
200 P R A K L N Y A L L M Y L E I T S A G V S F Q S P L M S L O P M L V V K P D P P L G L H M E V T D D

wsxfull.13.2.variant
mu.wsx.ecd

251 G N L K I S W S S P P L V P F P L O Y Q V K Y S E N S T T V I R E A D K I V S A T S L L V D S I L P
250 G N L K I S W D S Q T M A P F P L O Y Q V K Y L E N S - T I V R E A A E I V S A T S L L V D S V L P

wsxfull.13.2.variant
mu.wsx.ecd

FIG. 4A



wsxfull.13.2.variant	301	GSSYEVR	GKRLDGP	GIWSDWS	PRVFTTQDV	YFPPKILTSVGSN	VSF
mu.wsx.ecd	299	GSSYEVR	SKRLDGS	GVWSDWS	PQVFTTQDV	YFPPKILTSVGSN	ASF
wsxfull.13.2.variant	351	HCYKKE	IVPSKE	IVWW	QYDV	HVSKVTF	TK
mu.wsx.ecd	349	HCYKNE	IVSSKQ	IVWW	QYSI	VSKVTF	TR
wsxfull.13.2.variant	401	PRGKFTYDAVCCNE	HE	CHRYAEL	VIDVNINIS	CETDGYLT	KMTCRWS
mu.wsx.ecd	399	PRGKFTYDAVCCNE	QA	CHRYAEL	VIDVNINIS	CETDGYLT	KMTCRWS
wsxfull.13.2.variant	451	STIOSLAEST	OLRYHRC	SLYCS	DIPSIHP	ISEPKDCYLQSDG	FYECIF
mu.wsx.ecd	449	STIOSLVGSTV	OLRYHRC	SLYCP	DSPSIHP	TSEPKTASYRETAF	MNVFS
wsxfull.13.2.variant	501	QPIFLLSGYTMWIR	INHSLSGLD	SPPTCVLP	DSVVKPLPPS	SVKAEIT	IN
mu.wsx.ecd	499	SQSFYLYLAIQCGFR	INHSLSGLD	SPPTCVLP	DSVVKPLPPS	SVKAEIT	VN
wsxfull.13.2.variant	551	IGLLKISWEKPVFPENNLOFOIRYGLSGKE	V	OWKMY	EVY	DAKSKSV	SLPV
mu.wsx.ecd	549	TGLLKVSWEKPVFPENNLOFOIRYGLSGKE	I	OWKTH	EVF	DAKSKSA	SLLV

FIG. 4B



wsxfull.13.2.variant

mu.wsx.ecd

601	P	D	L	C	A	V	A	V	Q	V	R	C	K	R	L	D	G	L	G	Y	W	S	N	W	S	N	P	A	Y	T	V	V	M	D	I	K	V	P	M	R	G	P	E	F	W	R	I	I	N
599	S	D	L	C	A	V	V	V	Q	V	R	C	R	R	L	D	G	L	G	Y	W	S	N	W	S	S	P	A	Y	T	L	V	M	D	V	K	V	P	M	R	G	P	E	F	W	R	K	M	D

wsxfull.13.2.variant

mu.wsx.ecd

651	G	D	T	M	K	K	E	K	N	V	T	L	L	W	K	P	L	M	K	N	D	S	L	C	S	V	O	R	Y	V	I	N	H	T	S	C	N	G	T	W	S	E	D	V	G	N	H	T	K	
649	G	D	V	T	K	K	E	R	N	V	T	L	L	W	K	P	L	T	K	N	D	S	L	C	S	V	R	R	Y	V	V	K	H	R	T	A	H	N	G	T	W	S	E	D	V	G	N	R	T	N

wsxfull.13.2.variant

mu.wsx.ecd

701	F	T	F	L	W	T	E	Q	A	H	T	V	T	V	L	A	I	N	S	I	G	A	S	V	A	N	F	N	L	T	F	S	W	P	M	S	K	V	N	I	V	Q	S	L	S	A	Y	P	L	N
699	L	T	F	L	W	T	E	P	A	H	T	V	T	V	L	A	V	N	S	L	G	A	S	L	V	N	F	N	L	T	F	S	W	P	M	S	K	V	S	A	V	E	S	L	S	A	Y	P	L	S

wsxfull.13.2.variant

mu.wsx.ecd

751	S	S	C	V	I	V	S	W	I	L	S	P	S	D	Y	K	L	M	Y	F	I	E	W	K	N	L	N	E	D	G	E	I	K	W	L	R	I	S	S	S	V	K	K	Y	I	H	D
749	S	S	C	V	I	L	S	W	T	L	S	P	D	D	Y	S	L	L	Y	L	V	I	E	W	K	I	L	N	E	D	D	G	M	K	W												

wsxfull.13.2.variant

wsxfull.13.2.variant

801	F	I	P	I	E	K	Y	Q	F	S	L	Y	P	I	F	M	E	G	V	G	K	P	K	I	I	N	S	F	T	O	O	D	I	E	K	H	O	S	D	A	G	L	Y	V	I	V	P	V	I
851	S	S	S	I	L	L	G	T	L	I	S	H	O	R	M	K	K	L	F	W	E	D	V	P	N	P	K	N	C	S	W	A	Q	G	L	N	F	O	K	P	E	T	F	E	H	L	F		

FIG. 4C



wsxfull.13.2.variant 901 KHTASVTCGPLLLEPETISEDISVDTSWKNKDEMMPTTVVSLSTTDLEK

wsxfull.13.2.variant 951 GSVCI SDQFNSVNFSEAEGETEVTYEDESQRQPFVKYATLISNSKPSSETGE

wsxfull.13.2.variant 1001 EQGLINSSVTKCFSSKNSPLKDSFSNSSWEIEAQAFFILSDQHPIISPH

wsxfull.13.2.variant 1051 LTFSEGLDELLKLEGNFPEENNDKKSIIYVLGVTSIKKRESGVLLTDKSRV

wsxfull.13.2.variant 1101 SCPFPAPCLFTDIRVLQDSCSHFVENNINLGTSSSKKTFASYMPOFOTCST

wsxfull.13.2.variant 1151 QTHKIMENKMCOLTV

FIG. 4D



mu.wsx.ecd

1 GGGCCCCCCTCGAAGTCGACGGTATCGATAAGCTTGATATCGAATTCCG

mu.wsx.ecd

51 GCCGGGACACAGGTGGGACACTCTTTAGTCCTCAATCCCTGGCGGAGG

mu.wsx.ecd

101 CCACCCAGGCAACGCAGGACGCGGCTTTGGGGACCAAGGCAGCAGAC

mu.wsx.ecd

151 TGGGGCGGTACCTGCGGAGAGCCACGCAACTTCTCCAGGCCCTCTGACTAC

mu.wsx.ecd

201 TTTGGAAACTGCCCGGGGCTGCGACATCAACCCCTTAAGTCCCGGAGGCG

mu.wsx.ecd

251 GAAGAGGGTGGGTGGTTTGAAAGACACAGGAAGAAATGTGCTGTG

mu.wsx.ecd


301 GGGCGGGTTAAGTTTCCCAACCCTCTTCCCCCTTCCCGAGCAATTAGAAA

mu.wsx.ecd

351 CAAACAATAAGAAAGCCAGCCCTCCGGCCAACCAAGCCTCAGCGGA
1GAAATTCTCAGTCTGAC

wsxfull.13.2.variant 1

FIG. 5A



mu.wsx.ecd
 wxsfull.13.2.variant
 401 G C C C A A G C G G A G C C C C A G C C G G A G C A C T C C T T T A A A A G G A T T T G C A G C G
 17 G C G G C G T T A A A G C T C T C G T G G C A T T A T C C T T C A G T G G G C T . . . A T T G

mu.wsx.ecd
 wxsfull.13.2.variant
 451 G T G A G G A A A A C C A G A C C C G A C C G A G G A A T C G T T C T G C A A A T C C A G G T G
 64 G A C T G A C T T T C T T A T G C T G G G A T G T G . . . C C T T A G A G G A T T A T G G G T G

mu.wsx.ecd
 wxsfull.13.2.variant
 501 T A C A C C T C T G A A G A A A G A T G A T G T G T C A G A A A T T C T A T G T G G T T T T G T T A
 110 T A C T T C T C T G A A G T A A G A T G A T T T G T C A A A A A T T C T G T G T G G T T T T G T T A

mu.wsx.ecd
 wxsfull.13.2.variant
 551 C A C T G G G A A T T T C T T T A T G T G A T A G C T G C A C T T A A C C T G G C A T A T C C A A T
 160 C A T T G G G A A T T T A T T T A T G T G A T A A C T G C G T T T A A C T T G T C A T A T C C A A T

mu.wsx.ecd
 wxsfull.13.2.variant
 601 C T C T C C C T G G A A A T T T A A G T T G T T T T G T G G A C C A C C G A A C A C A C C C G A T G
 210 T A C T C C T T G G A G A T T T A A G T T G T C T T G C A T G C C A C C A A A T T C A C C T A T G

mu.wsx.ecd
 wxsfull.13.2.variant
 651 A C T C C T T T C T C T T C A C C T G C T G G A G C C C C A A A C A A T G C C T C G G C T T T G A A G
 260 A C T A C T T C C T T T T G C C T G C T G G A C T C T C A A A G A A T A C T T C A A T T C G A A T

FIG. 5B

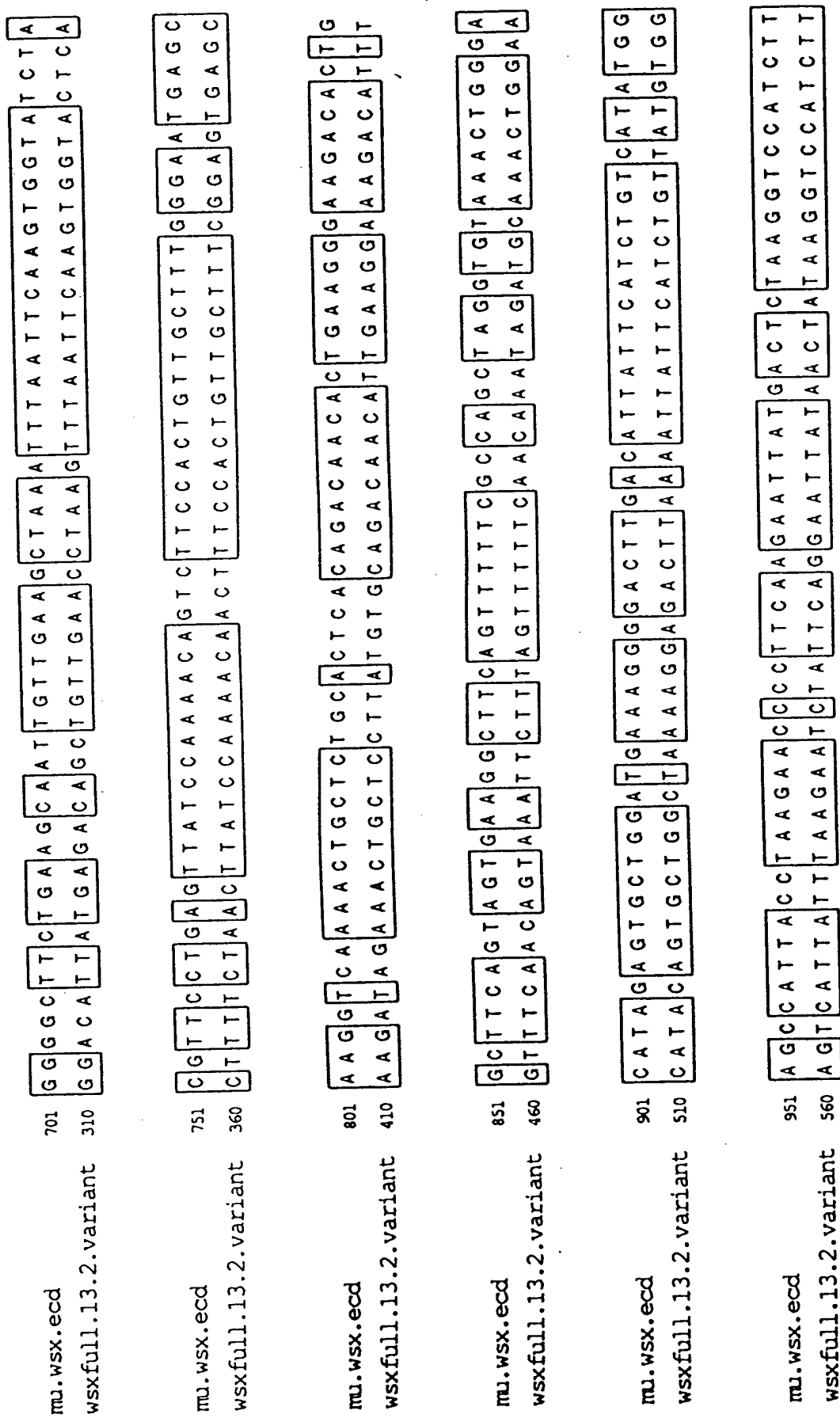
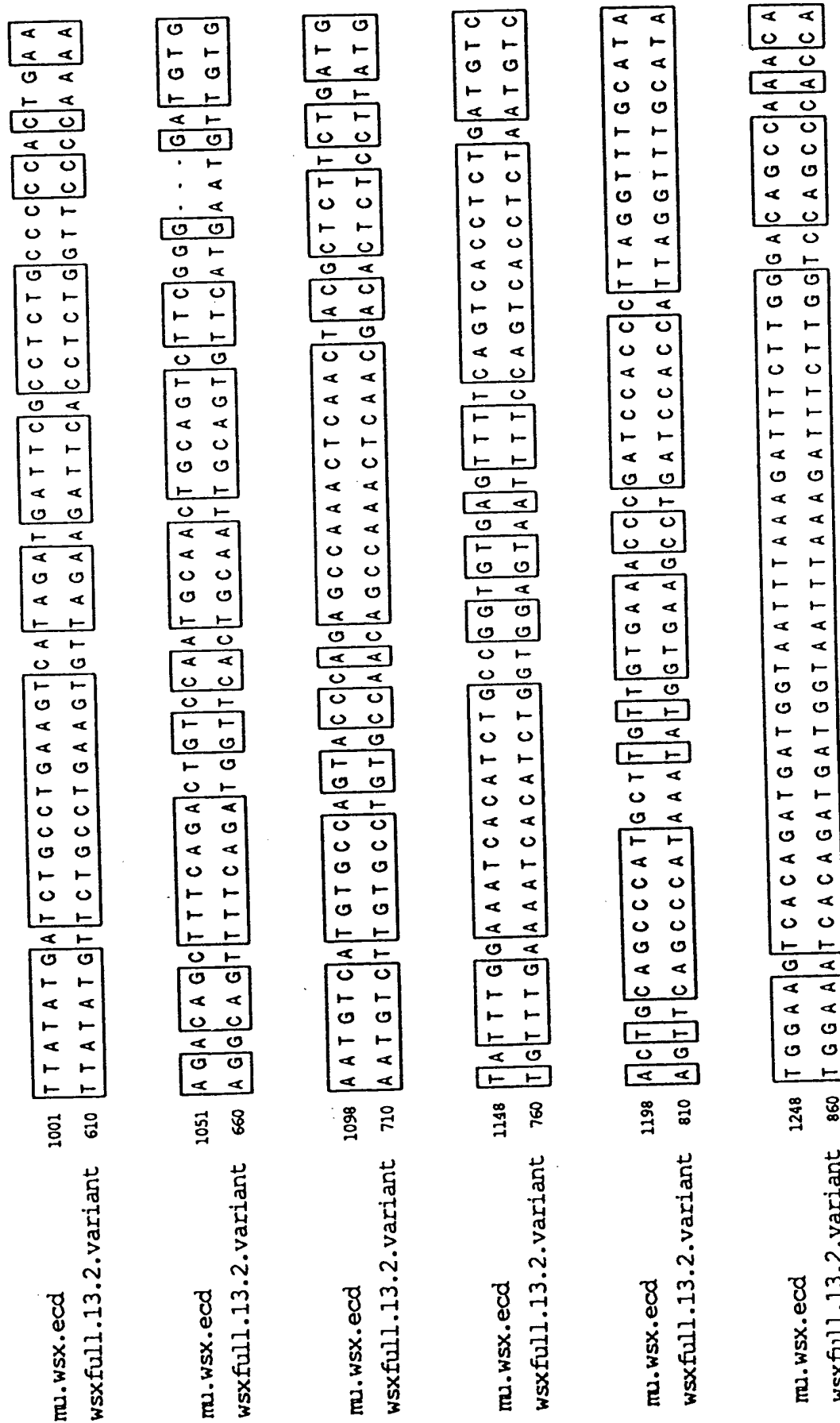


FIG. 5C





ml.wsx.ecd	1298	A T G G C	A C C A T T T C C G	C T T C A A T A T C A G	G T G A A A T A T T	T A G A G A A T T C T A C
	910	T T G G T	A C C A T T T C C A	C T T C A A T A T C A A	G T G A A A T A T T	C A G A G A A T T C T A C
ml.wsx.ecd	1348	A A . . .	T T G T A	A G A G A G	G C T G C T G A	A A T T G T C T C A G C T A C A T C
	960	A A C A G T T A T	T C A G A G A A	G C T G A C A A G	A T T G T C T C A G C T A C A T C	C T G C T A G
ml.wsx.ecd	1395	T A G A C A G T G	C T T C C T G G A	T C T T C A	T A T G A G G T C	C A G G T G A G G A G C A A G
	1010	T A G A C A G T A T	A C T T C C T G G G	T C T T C G	T A T G A G G T T	C A G G T G A G G G C A A G
ml.wsx.ecd	1445	A G A C T G G A T G G	T T C A G G A G	T C T G G A G T G A C T G G A G T	T C A C C T C A A	A G T C T T
	1060	A G A C T G G A T G G	C C C A G G A A	T C T G G A G T G A C T G G A G T	A C T C C T C G T	G T C T T
ml.wsx.ecd	1495	T A C C A C A C A A G A T G T	T G T G T A T	T T T C C A C C C	C A A A A T T C T G A C T	A G T G T T G
	1110	T A C C A C A C A A G A T G T	C A T A T A C	T T T C C A C C T	A A A A T T C T G A C A	A G T G T T G
ml.wsx.ecd	1545	G A T C G A A T G C	T T C C T T T C A T	T G C A T C T A C A A A	C G A A A A C	C A G A T T G T C
	1160	G G T C T A A T G T	T T C T T T T C A C T	T G C A T C T A T A G A A	G G A A A A C	A G A T T G T T

FIG. 5E



METHOD FOR IDENTIFYING ANTIBODIES THAT DECREASE
BODY...

Carter et al.

Appl. No.: 08/779,457

Atty Docket: GENENT.053CP2

ml.wsx.ecd

1595

T C C T C A A A C A G A T

A G T T T G G T G G A G

G A A T C T A G C T G A G A A A A T

C C C T C A A A G A G A T

T T A G C T G A G A A A A T

C C T G A

C C T C A

wsx.full.13.2.variant

1210

T C C T C A A A C A G A T

A G T T T G G T G G A G

G A A T C T A G C T G A G A A A A T

C C C T C A A A G A G A T

T T A G C T G A G A A A A T

C C T G A

C C T C A

ml.wsx.ecd

1645

G A T A C A G T A C A G C A T

T T G T G A G T G A C C G A

G T T A G C A A A G T T A C C T T

G T T A G C A A A G T T A C T T

C T T C T C A

C T T C A

wsx.full.13.2.variant

1260

A G C C A G T A T G A T G T

T T G T G A G T G A T C A T

G T T A G C A A A G T T A C C T T

G T T A G C A A A G T T A C T T

C T T C T C A

C T T C A

ml.wsx.ecd

1695

A C T G A A A G C C A C C A

A C C A A A C C T C G A G G

A A G T T T A C C T A T G A C

A A G T T T A C C T A T G A T

G C A G T G T A C

G C A G T G T A C

wsx.full.13.2.variant

1310

A C T G A A A G C C A C C A

A C C A A A C C T C G A G G

A A G T T T A C C T A T G A C

A A G T T T A C C T A T G A T

G C A G T G T A C

G C A G T G T A C

ml.wsx.ecd

1745

T G C T G C A A T G A G C A G

C G C T A T G C T G A A T T A T A

C G C T A T G C T G A A T T A T A

C G C T A T G C T G A A T T A T A

C G T G A T

C G T G A T

wsx.full.13.2.variant

1360

T G C T G C A A T G A G C A G

C G C T A T G C T G A A T T A T A

C G C T A T G C T G A A T T A T A

C G C T A T G C T G A A T T A T A

C G T G A T

C G T G A T

ml.wsx.ecd

1795

C G A T G T C A A T A T C A A T A T

T C A T G T G A A A C T G A C

G G G T A C T T A A C T A A A A

G G G T A C T T A A C T A A A A

G G G T A C T T A A C T A A A A

G G G T A C T T A A C T A A A A

wsx.full.13.2.variant

1410

C G A T G T C A A T A T C A A T A T

T C A T G T G A A A C T G A C

G G G T A C T T A A C T A A A A

G G G T A C T T A A C T A A A A

G G G T A C T T A A C T A A A A

G G G T A C T T A A C T A A A A

ml.wsx.ecd

1845

T G A C T T G C A G A T G G T C A C

C C A G C A C A A T C C C A A

T C A C T A G T G G G A A A G C A C T

T C A C T A G T G G G A A A G C A C T

T C A C T A G T G G G A A A G C A C T

T C A C T A G T G G G A A A G C A C T

wsx.full.13.2.variant

1460

T G A C T T G C A G A T G G T C A C

C C A G C A C A A T C C C A A

T C A C T A G T G G G A A A G C A C T

T C A C T A G T G G G A A A G C A C T

T C A C T A G T G G G A A A G C A C T

T C A C T A G T G G G A A A G C A C T

FIG. 5F

Carter et al.

Appl. No.: 08/779,457

Atty Docket: GENENT.053CP2

mu.wsx.ecd

wsxfull.13.2.variant

1895

1510

mu.wsx.ecd

wsxfull.13.2.variant

1945

1560

mu.wsx.ecd

wsxfull.13.2.variant

1994

1610

mu.wsx.ecd

wsxfull.13.2.variant

2044

1660

mu.wsx.ecd

wsxfull.13.2.variant

2094

1709

mu.wsx.ecd

wsxfull.13.2.variant

2144

1759

FIG. 5G



mu.wsx.ecd

2194

wsx.full.13.2.variant 1809

AGTCTTTCC	GGAGAATAACCTTCAATTCCAGATTTCG	ATATGGC	TTAAGTG
AGTCTTTCC	AGAGAATAACCTTCAATTCCAGATTTCG	ATATGGC	TTAAGTG

mu.wsx.ecd

2244

wsx.full.13.2.variant 1859

GAAAGAA	TACAATGGAAAGACAC	ATGAGGT	TTCC	GATGCAAG	TCAAAAG
GAAAGAA	TACAATGGAAAGATGT	ATGAGGT	TTAT	GATGCAAA	ATCAAAA

mu.wsx.ecd

2294

wsx.full.13.2.variant 1909

TCTGTCAG	CTGCTGGTGTCTCAGAC	CTCTGTCGTCAGTCTATGT	GTCTGTC	CAGGT
TCTGTCAG	CTCTCAGTCTCAGAC	TTGTGTCAGTCTATGT	GTCTGTC	CAGGT

mu.wsx.ecd

2344

wsx.full.13.2.variant 1959

TCGCTGCCG	CTGGTGGACT	GGATATTGGAGTAATTGGAGCA	GTCTC
CGCTGTAG	GATGGACT	GGATATTGGAGTAATTGGAGCA	ATC

mu.wsx.ecd

2394

wsx.full.13.2.variant 2009

CAGCCTATAC	GGCTTGTCATGGAT	TAAAAGTTCCTATGAGAGG	GCCTGAA
CAGCCTACAC	TTGTCATGGAT	TAAAAGTTCCTATGAGAGG	GCCTGAA

mu.wsx.ecd

2444

wsx.full.13.2.variant 2059

TTTGGAGAA	AATGGATGGG	GACGT	TACT	AAAAAGGAGA	GAAATGTCAC
TTTGGAGAA	AATTAATGGAGAT	TACT	TACT	AAAAAGGAGA	AAAAATGTCAC

FIG. 5H

ml.wsx.ecd

2494

C T T G C T T T G G A A G C C C C T G A C G A A A A A T G A C T C A C T G T G T A G T G T G A G G A
T T T A C T T T G G A A G C C C C T G A T G A A A A A T G A C T C A T T G T G C A G T G T C A G A

wsx.full.13.2.variant 2109

ml.wsx.ecd

2544

G G T A C G T G G T G A A G C A T C G T A C T G C C C A C A A T G G G A C G T G G T C A G A A G A T
G A T A T G T G A T A A A C C A T C A T A C T T C C T G C A A T G G A A C A T G G T C A G A A G A T

wsx.full.13.2.variant 2159

ml.wsx.ecd

2594

G T G G G A A A T C G G A C C A A T C T C A C T T T C C T G T G G A C A G A A C C A G C G C A C A C
G T G G G A A A T C A C A C G A A A T T C A C T T T C C T G T G G A C A G A G C A A G C A C A T A C

wsx.full.13.2.variant 2209

ml.wsx.ecd

2644

T G T T A C A G T T C T G G C T G T C A A T T C C C T C G G C G C T T C C C T T G T G A A T T T A
T G T T A C G G T T C T G G C C A T C A A T T C A A T T G G T G C T T C T G T T G C A A A T T T A

wsx.full.13.2.variant 2259

ml.wsx.ecd

2694

A C C T T A C C C T T C T C A T G G C C C A T G A G T A A A G T G A G T G C T G T G A G T C A C T C
A T T T A A C C T T T T C A T G G C C T A T G A G C A A A G T A A A T A T C G T G C A G T C A C T C

wsx.full.13.2.variant 2309

ml.wsx.ecd

2744

A G T G C T T A T C C C C T G A G C A G C A G C T G T G T C A T C C T T T C C C T G G A C A C T G T C
A G T G C T T A T C C C T T T A A A C A G C A G T T G T G T G A T T G T T C C T G G A T A C T A T C

wsx.full.13.2.variant 2359

FIG. 5I



ml.wsx.ecd 2794 ACC TGA TGA TTA TGA TCT GTT TAT TCT GGT TTT TGA ATCTTA TCGCTTA
wsxfull.13.2.variant 2409 ACC CAG TGA TTA CAGCTAATGTATTTATTTATTTGGAAGATCTTAATCTTA

ml.wsx.ecd 2844 ATGAAGATGATGGAATGGAATGAGCTTGGCT TGGCT
wsxfull.13.2.variant 2459 ATGAAGATGATGGAATGGAATGAGCTTGGCTTAGAATCTCTTCATCTGTTAAGAAAG

wsxfull.13.2.variant 2509 TATTTATATCCATGATCATTTTATCCCCATTGAGAAAGTACCAAGTTCAGTCT

wsxfull.13.2.variant 2559 TTACCCCAATATTTATGGAAGGAGTGGGAAACCCAAAGATAATTAAATAGTT

wsxfull.13.2.variant 2609 TCACTCAAGATGATATTTGA AAAACACCAGAGTGATGCAAGGTTTATATGTAT

wsxfull.13.2.variant 2659 ATTGTGCCAGTAATTATTTCTCTTCCATCTTATTTGCTTGGAACATTATT

wsxfull.13.2.variant 2709 AATATCACACCAAGAAATGA AAAAGCTATTTTGGGAAGATGTTCCGAACC

wsxfull.13.2.variant 2759 CCAAGAAATTGTTCTCTGGGCACAAGGACTTAATTTTCAGAAAGCCAGAAACG

FIG. 5J



wsxfull.13.2.variant 2809 TTTGAGCATCTTTTATCAAGCATACAGCATCAGTGACATGTGGTCCCTCT
wsxfull.13.2.variant 2859 TCTTTTGGAGCCTGAACAATTTCAAGATATCAGTGTGATACATCAT
wsxfull.13.2.variant 2909 GGAAAAATAAGATGAGATGATGCCAACAACTGTGGTCTCTCTACTTTCA
wsxfull.13.2.variant 2959 ACAACAGATCTTGAAAAAGGGTTCTGTTTGTATTAGTGACCAGTTCAACAG
wsxfull.13.2.variant 3009 TGTTAACCTTCTGAGGCTGAGGGTACTGAGGTAACTATGAGGACGAAA
wsxfull.13.2.variant 3059 GCCAGAGACAACCTTTGTTAAATACGCCACGGCTGATCAGCAACTCTAAA
wsxfull.13.2.variant 3109 CCAAGTGAACTGGTGAAGAACAAAGGGCTTATAAATAGTTCAGTCACCAA
wsxfull.13.2.variant 3159 GTGCTTCTCTAGCAAAAATTCTCCGTTGAAGGATTCTTTCTCTAATAGCT
wsxfull.13.2.variant 3209 CATGGGAGATAGAGGCCCCAGGCAATTTTATATTATCAGATCAGCATCCC

FIG. 5K



wsxfull.13.2.variant 3259 AACATAATTTCACCACACCTCACATTCTCAGAAAGGATTGGATGAACCTTTT

wsxfull.13.2.variant 3309 GAAATTGGAGGGAATTTCCTGAAGAAAATAATGATAAAAAGTCTATCT

wsxfull.13.2.variant 3359 ATTATTTAGGGGTCACTCAATCAAAAAGAGAGAGAGTGGTGTGCTTTTG

wsxfull.13.2.variant 3409 ACTGACAAGTCAAGGTATCGTGCCCATTCCTCCAGCCCCCTGTTTATTTCAC

wsxfull.13.2.variant 3459 GGACATCAGAGTTCTCCAGGACAGTTGCTCACACTTTTGTAGAAAATAATA

wsxfull.13.2.variant 3509 TCAACTTAGGAACCTTCTAGTAAGAAGACTTTTGCATCTTACATGCCTCAA

wsxfull.13.2.variant 3559 TTCCAAACTTGTCTACTCAGACTCATAGATCATGGAAAACAAGATGTG

wsxfull.13.2.variant 3609 TGACCTAACTGTGTAATTTCACCTGAAGAAACCTTCAGATTTGTGTTATAA

wsxfull.13.2.variant 3659 TGGGTAAATATAAGTGTAAATAGATTATAGTTGTGGGTGGGAGAGAGAAA

FIG. 5L



wsxfull.13.2.variant 3709 G A A C C A G A G T C A A A T T G A A A A T A A T T G T T C C A A A T G A A T G T T G T C T G T

wsxfull.13.2.variant 3759 T T G T T C T C T C T T A G T A A C A T A G A C A A A A A T T T G A G A A A G C C T T C A T A A G

wsxfull.13.2.variant 3809 C C T A C C A A T G T A G A C A C G C T C T T C T A T T T T A T T C C C A A G C T C T A G T G G G A

wsxfull.13.2.variant 3859 A G G T C C C T T G T T T C A G C T A G A A A T A A G C C C A A C A G A C A O C A T C T T T T G T

wsxfull.13.2.variant 3909 G A G A T G T A A T T G T T T T T C A G A G G G C G T G T T G T T T A C C T C A A G T T T T T G

wsxfull.13.2.variant 3959 T T T T G T A C C A A C A C A C A C A C A C A C A T T C T T A A C A C A T G T C C T T G T G

wsxfull.13.2.variant 4009 T G T T T T G A G A G T A T A T T A T G T A T T T A T A T T T T G T G C T A T C A G A C T G T A G G

wsxfull.13.2.variant 4059 A T T T G A A G T A G G A C T T T C C T A A A T G T T T A A G A T A A A C A G A A T T C

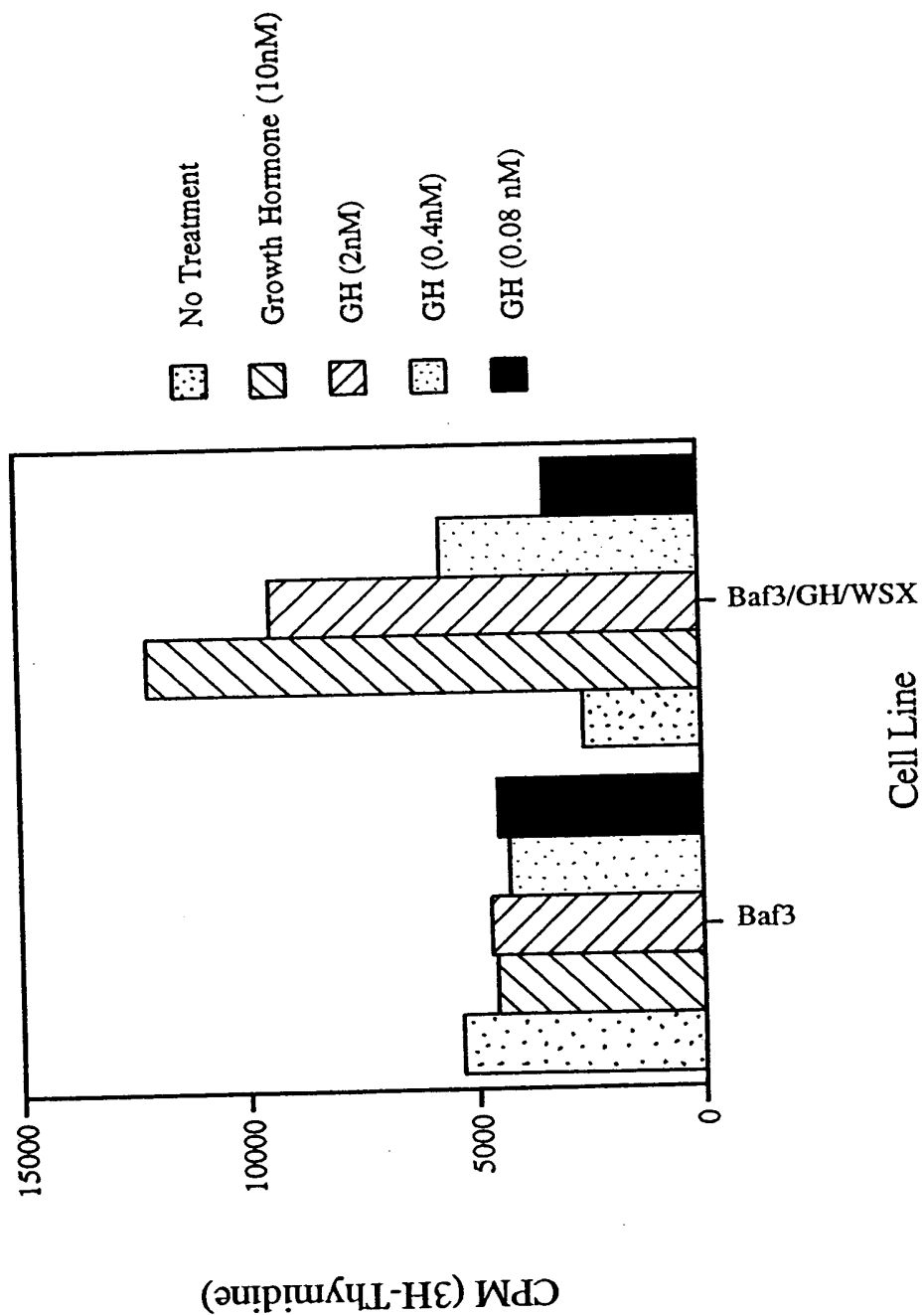
FIG. 5M



METHOD FOR IDENTIFYING ANTIBODIES THAT DECREASE
BODY...

Carter et al.

Appl. No.: 08/779,457 Atty Docket: GENENT.053CP2

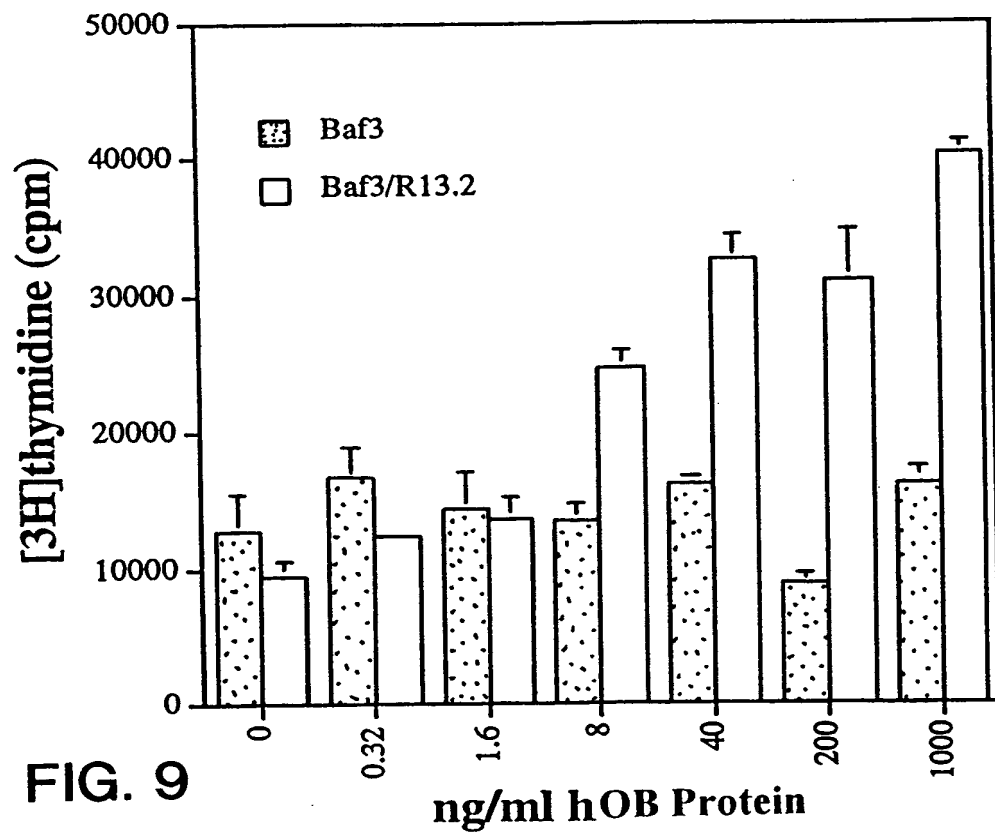
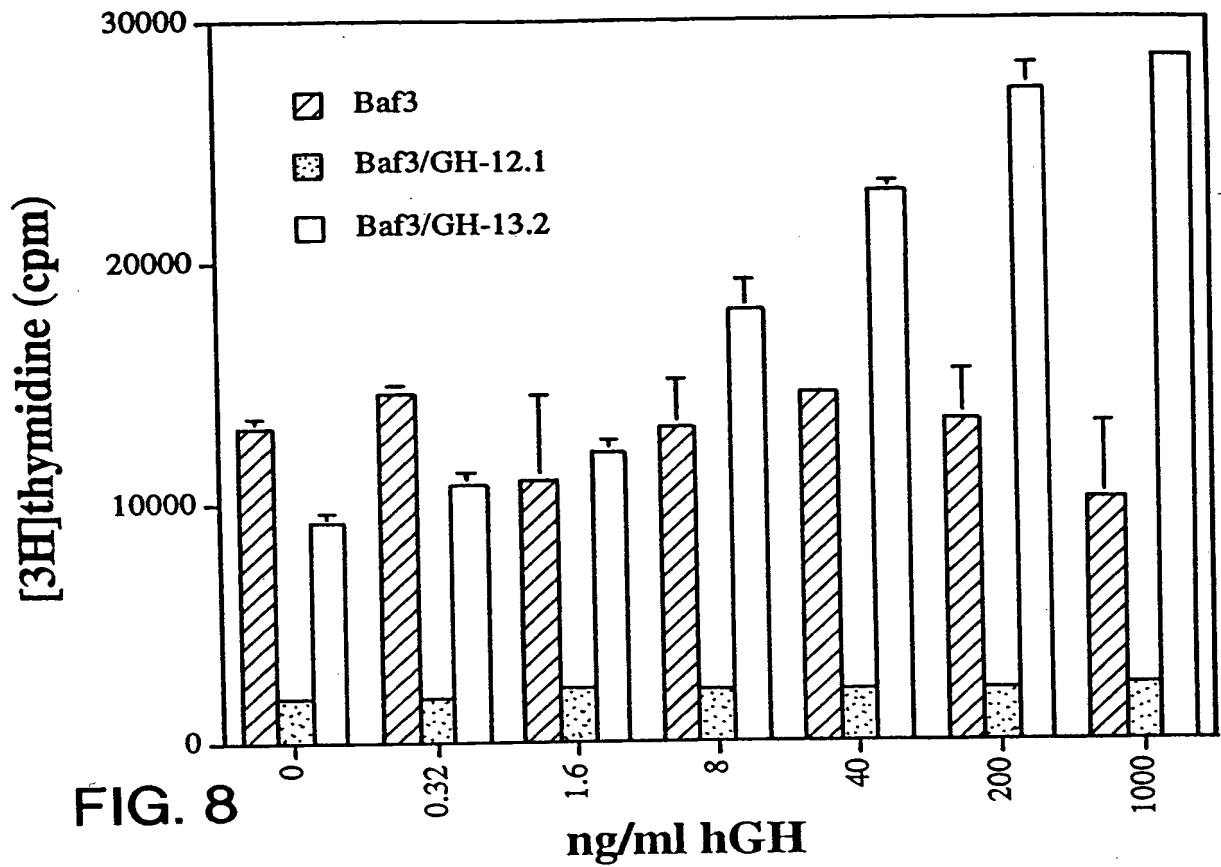


Cell Line
FIG. 6



<u>Murine</u>			
-213	Sense:	GGGTTAAGTTTCCCACCC	(SEQ ID NO:9)
	Antisense:	GGGTGGGAACTTAACCC	(SEQ ID NO:10)
	Scrambled:	AGGATACAGTGGGATCCC	(SEQ ID NO:11)
-99	Sense:	GCCCGAGCACTCCTTTAA	(SEQ ID NO:12)
	Antisense:	TTAAAGGAGTGCTCCCGC	(SEQ ID NO:13)
	Scrambled:	GAGCGGCCCTGTTAGATA	(SEQ ID NO:14)
-20	Sense:	GTATACACCTCTGAAGAA	(SEQ ID NO:15)
	Antisense:	TTCTTCAGAGGTGTACAC	(SEQ ID NO:16)
	Scrambled:	ATGCGAGGCTACTTCTAT	(SEQ ID NO:17)
+84	Sense:	CTCTCCCTGGAAATTTAA	(SEQ ID NO:18)
	Antisense:	TTAAATTTCCAGGGAGAG	(SEQ ID NO:19)
	Scrambled:	ATTTGAAGGAGTTAAGCC	(SEQ ID NO:20)
+211	Sense:	AATTTAATTCAAGTGGTA	(SEQ ID NO:21)
	Antisense:	TACCAGTTGAATTAAATT	(SEQ ID NO:22)
	Scrambled:	GTATCACTTCATAATATA	(SEQ ID NO:23)
<u>Human</u>			
5L	Sense:	GATGGTCAGGGTGAACTG	(SEQ ID NO:24)
	Antisense:	CAGTTCACCCTGACCATC	(SEQ ID NO:25)
	Scrambled:	GAGGCGAATGTGCGGATT	(SEQ ID NO:26)
+85	Sense:	CTTAAATCTCCAAGGAGT	(SEQ ID NO:27)
	Antisense:	ACTCCTTGGAGATTTAAG	(SEQ ID NO:28)
	Scrambled:	AAGTCTTAAGCCAGACTT	(SEQ ID NO:29)
-47	Sense:	TCTAAGGCACATCCCAGC	(SEQ ID NO:30)
	Antisense:	GCTGGGATGTGCCTTAGA	(SEQ ID NO:31)
	Scrambled:	CGCAATGAATTGACCCCC	(SEQ ID NO:32)
-20	Sense:	TACTTCAGAGAAGTACAC	(SEQ ID NO:33)
	Antisense:	GTGTACTTCTCTGAAGTA	(SEQ ID NO:34)
	Scrambled:	GAATCACGGTAACTATCA	(SEQ ID NO:35)
+185	Sense:	CAGCTGTCTCATAATGTC	(SEQ ID NO:36)
	Antisense:	GACATTATGAGACAGCTG	(SEQ ID NO:37)
	Scrambled:	TTCGTCAAGCCATCTGAT	(SEQ ID NO:38)

FIG. 7



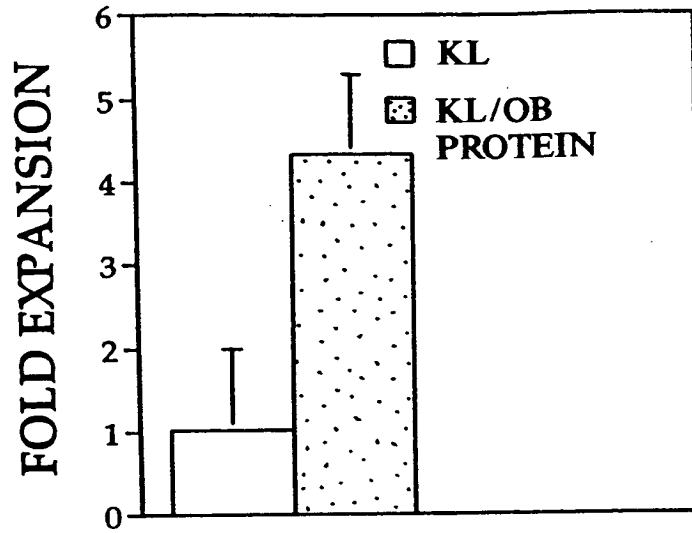
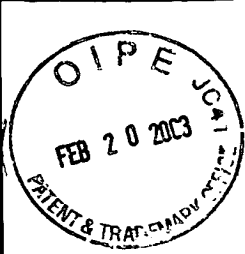


FIG. 10A

OB flask COLONY DATA

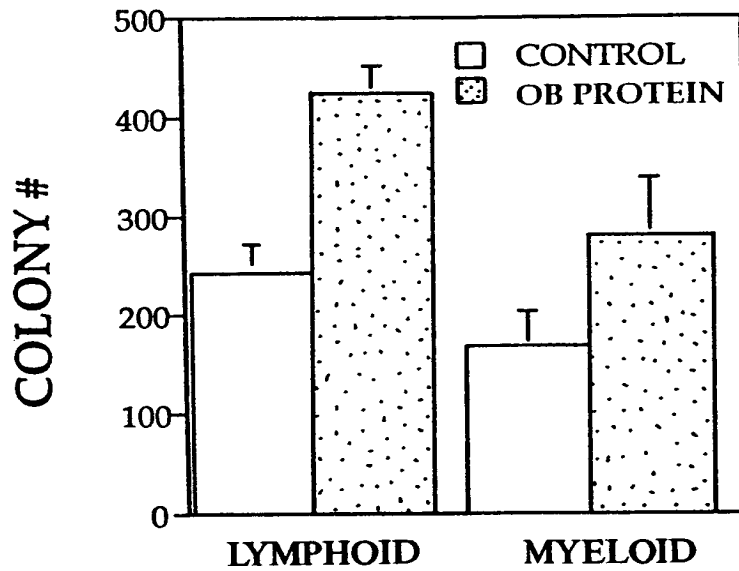


FIG. 10B

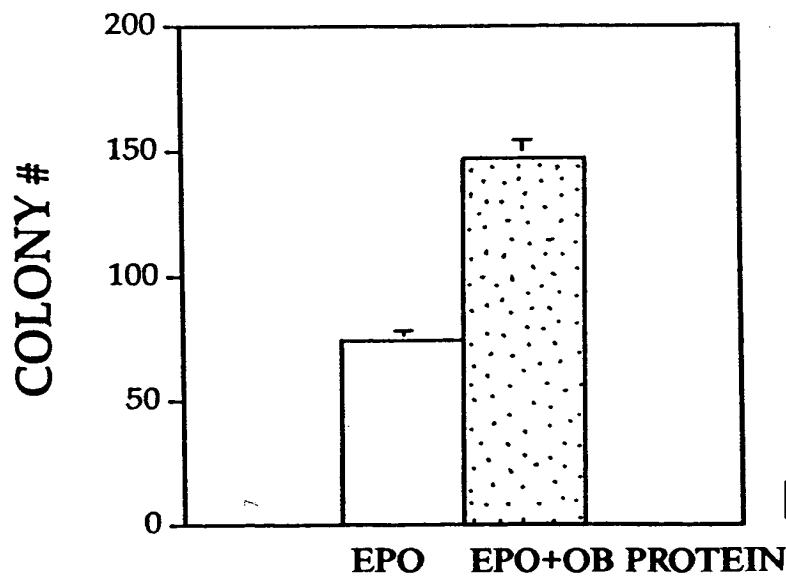


FIG. 10C

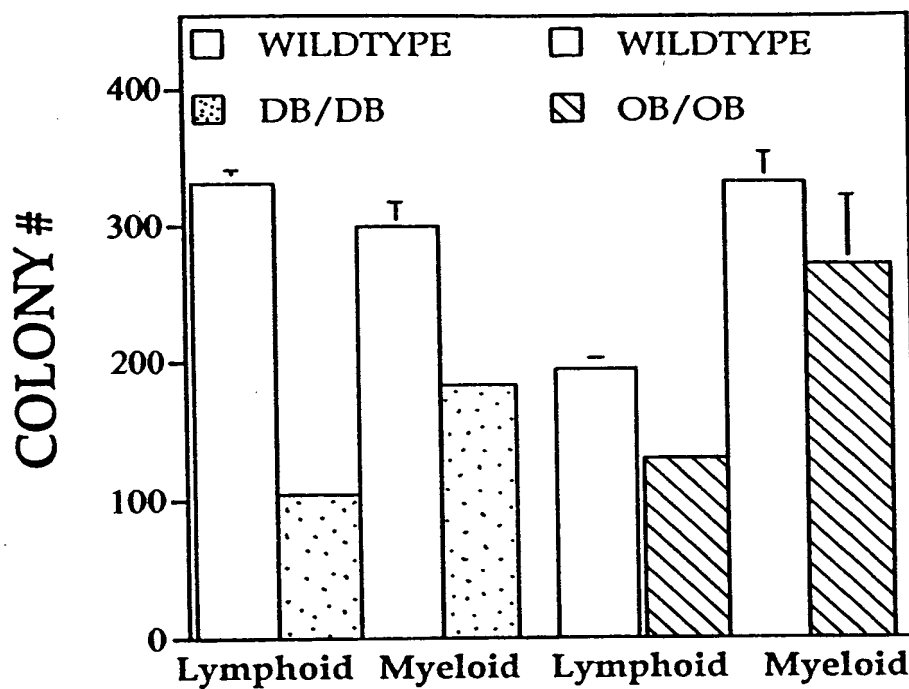


FIG. 11

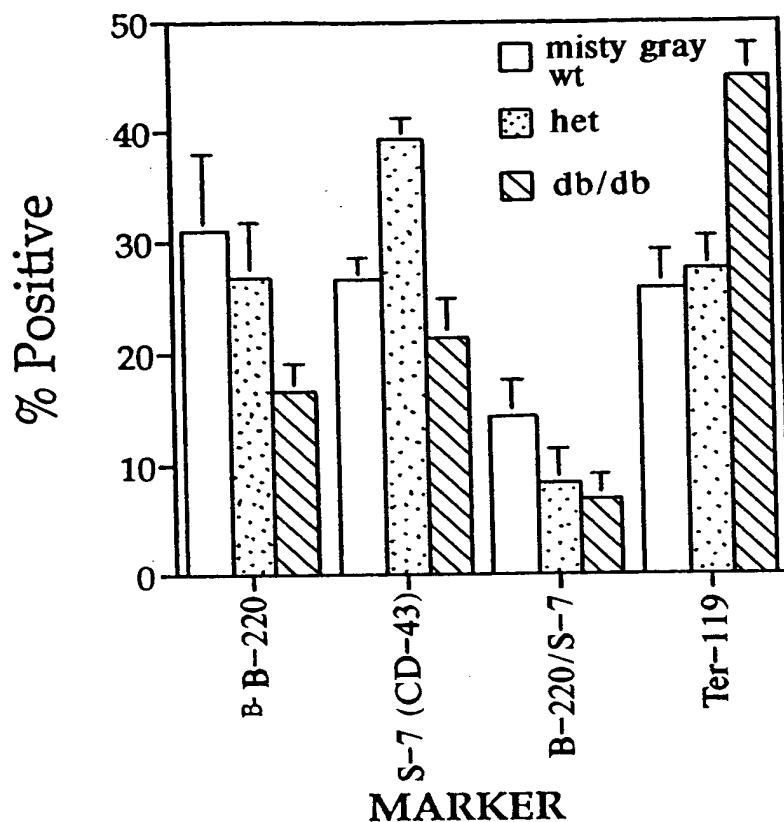


FIG. 12A

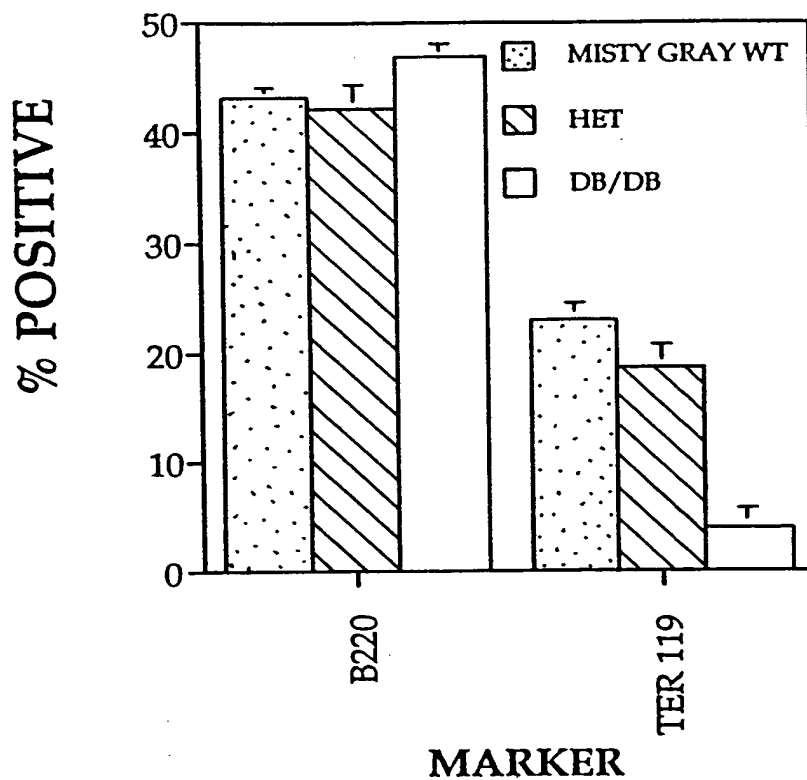


FIG. 12B

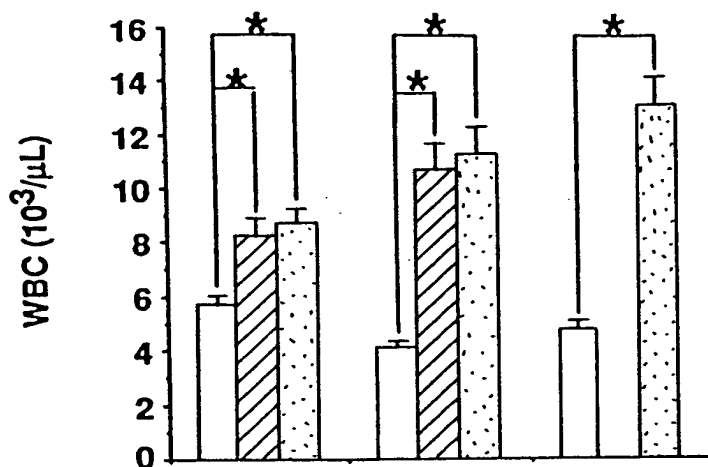


FIG. 13A

□ db/db homozygous
▨ Misty Gray homozygous
▤ db/Misty Gray heterozygous

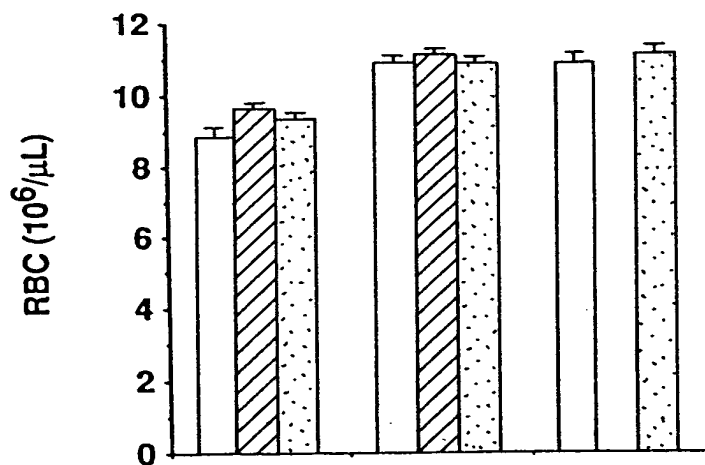


FIG. 13B

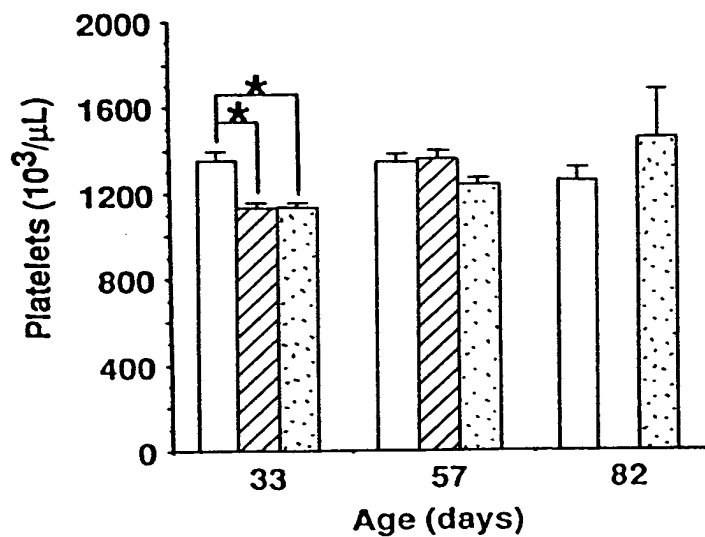
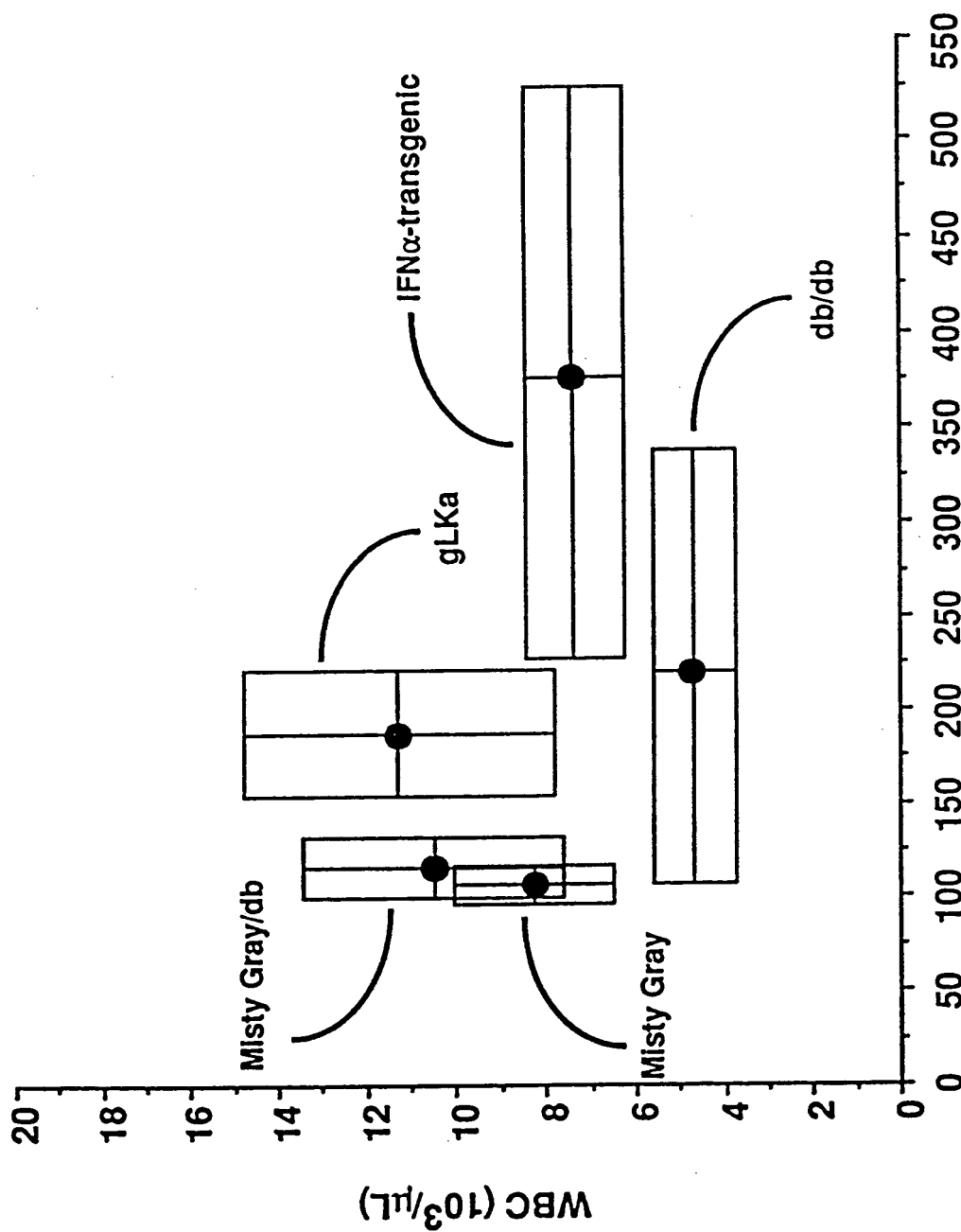


FIG. 13C



Blood Glucose (mg/dL)

FIG. 14

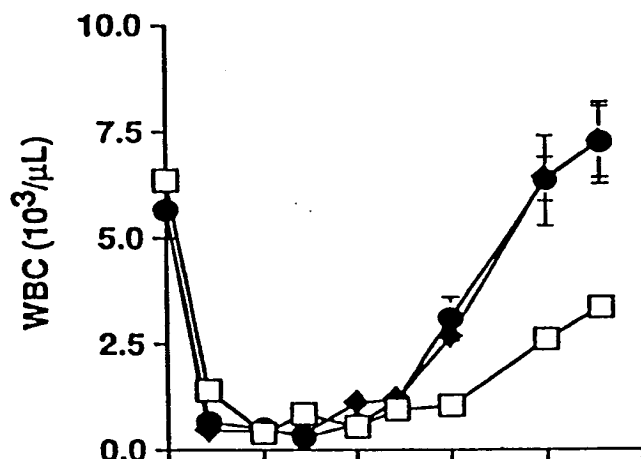


FIG. 15A

—□— db/db homozygous
—◆— db/Misty Gray heterozygous
—●— Misty Gray Controls

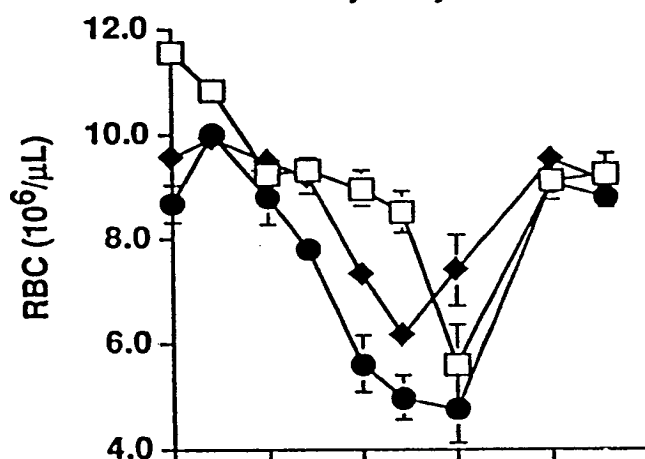


FIG. 15B

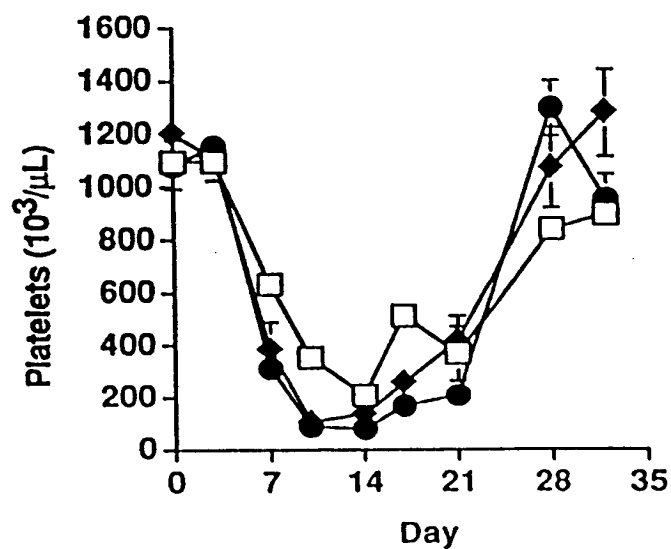
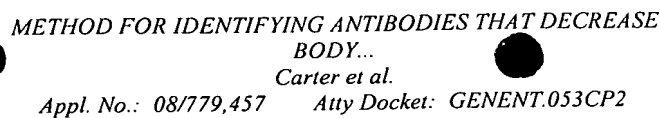


FIG. 15C



aluI
 sstI
 sacI
 hgi3II
 hgiAI/asplI
 eci136II
 bsp1286
 bsiHKA1
 bmyI
 banII
 taqI
 rmaI tru9I
 maeI mseI
 speI aseI/asnI/vspI
 1 TTGAGCTCG CCGACATTG ATTATTGACT AGTTATTAT AGTAATCAAT TACGGGGTCA TTAGTTCATA GCCCATATAT GGAGTTCGC GTTACATTAAC
 AAGCTCGAGC GGCTGTAACT TAATAACTGA TCAATAATTA TCATTAGTTA ATGCCCCAGT AATCAAGTAT CCGGTATATA CCTCAAGGCG CAATGTATTG
 scrFI
 mvaI
 ecorII
 dsav
 aciI
 bglI bstNI
 sau96I
 haeIII/palI aciI
 asuI apyI(dcm+)
 101 TTACGGTAA TGGCCCRCT GGCTGACCG CCAACGACCC CCGCCCATTC AGTCAATAA TGACGTATGT TCCCATAGTA ACGCCAATAG GGACTTTCCA
 AATGCCATT ACCGGGGGA CCGACTGGCG GGTGCTGGG GCGGGGTAAC TGCAGTTATT ACTGCATACA AGGTATCAT TCGGTATATC CCTGAAAGGT
 maeII
 hinII/acyI
 ahaII/bsaHI
 aatII
 bglI
 rsaI
 csp6I
 maeII
 hinII/acyI
 ahaII/bsaHI
 aatII
 201 TTGACGTCAA TGGGTGGAGT ATTACGGTA AACTGCCCCA TTGGCAGTAC ATCAAGTGA TCATATGCCA AGTACGCCCC CTATTGACGT CAATGACGGT
 AACTGCAGTT ACCACCTCA TAAATGCCAT TTGACGGGTG AACCGTCATG TAGTTCAAT AGTATACGGT TCATCGGGGG GATAACTGCA GTTACTGCCA

FIG. 16A

[illegible]

FIG. 16C

017 E JUN 10 2003
FEB 20 2003
PATENT & TRADEMARK

```

sau96I
avaII
asuI
scrFI
mvaI
ecorII
dsav
bstNI
apyI[dcmt+]

bsLI bsajI
801 CATAACCTTA TGTATCATAC ACATAGCATT TAGGTGACAC TATAGAATAA CATCCACTTT GCCTTTCCTCT CCACAGGTGT CCACGCCAG GTCCAAGTGC
GTATTGGAAT ACATAGTATG TGTATGCTAA ATCCACTGTG ATATCTTATT CTAGGTGAAA CGGAAGAGA GGTCTCCACA GGTGAGGCTC CAGGTTGACG
^sp6 RNA start

maeIII hphI scfI fokI
ppu10I tfil sau96I
bsajI taqI nsII/avaIII hinfi haefII/palI bspI286
bsajI clai/bsp106 nlaIV acil asuI aluI bmyI foki
901 ACCTCGGTC TATCGATATG CATTGGGAA CCTGTGCGG ATTCTTGCG CTTTGGCCCT ATCTTTTCTA TGTCCAAGCT GTGCCATCC AAAAAGTCCA
TGGAGCCAAG ATAGCTATAC GTAACCCCTT GGCACACGCC TAAGAACACC GAAACCGGA TAGAAAAAGAT ACAGGTTTGA CACGGGTAGG TTTTTCAGGT
1 Met HisTrpGlyt hrLeuCysGI yPheLeuTrp LeuTrpProt yrLeuPheTy rValcInAla ValProileG InLysValGlN
^cloning linker ^human OB start

sau3AI
mbolI/ndeII[dam-]
dpmI[dam+]
scrFI
mvaI
ecorII
dsav
bstNI
apyI[dcmt+]
munII muniI maeIII alwI[dam-] hphI dpmI[dam-] mnliI bsmAI hphiI maeIII
1001 AGATGACACC AAAACCCCTCA TCAAGACAAT TGTCAACAGG ATCAATGACA TTTCACACAC GCAGTCAGTC TCCTCCAAAC AGAAAGTCAC CGGTTTGGAC
TCTACTGTGG TTTTGGGAGT AGTTCTGTGA ACAGTGGTCC TAGTTACTGT AAAGTGTGTG GGTCAAGTCAG AGGAGGTTTG TCTTTCAGTG GCCAAACTG
29 AspAspThr LysThrLeuI leLysThrIle eValThrArg IleasnAspI leSerHisTh rGlnSerVal SerSerLysG InLysValTh rGlyLeuasp

```

FIG. 16D

FIG. 16E

[illegible]

FIG. 16F

FIG. 16G



mspI dsal
hpaII hphI
fnu4HI mnlI
bbvI mnlI
1901 CGTGGAGTGG GAGAGCAATG GAACAACACTAC AAGACCACGC CTCCCGTGCT GACTCCGAC GCTCCTTCT TCCTCTACAG CAAGCTCACC
GCACCTCACC CTCTCGTTAC CGTCGGCTTCTTCTGTCATG TTCTGGTGG GAGGGCAGCA CCTGAGGCTG CCGAGGAAGA AGGAGATGTC GTTCGAGTGG
329 ValGluTrp GluSerAsnG lylGlnProG lylGlnProG LysThrThrP roProValle uAspSerAsp GlySerPheP heLeuTrSe rLysLeuThr
scrFI
ncII
mspI
hpaII
dsav
bsmAI
sapI
mboII mnlI
earI/ksp632I bslI cauII
2001 GTGGACAAGA GCAGGTGGCA GCAGGGGAAC GTCTTCTCAT GCTCCGTGAT GCATGAGGCT CTGCACAACC ACTACACGCA GAAGAGCCTC TCCCTGTCTC
CACCTGTTCT CGTCCACCGT CGTCCCTTG CAGAAGACTA CGAGGACTA CGTACTCCGA CACGTGTTGG TGATGTGGT CTTCCTCGAG AGGGACAGAG
362 ValAspLys erArgTrpG l nGlnGlyAsn ValPheSerC ysSerValMe thisGluAla LeuHisAsnH istyrThrG l nLysSerLeu SerLeuSerPro
sau96I
nlaIII
fnu4HI haelIII/palI
bglI styI
pleI scfI
rmal salI pstI
eaeI dsal
sau96I hinfI pstI
xbal hincII/hindII
cfri bsaJI
haeIII/palI
alul maeI accI bsgI
alul haelIII/palI
asul maeI accI bspMI
hindIII hinfI bspMI
hindIII acfI asul
2101 CGGGTAATG AGTGGACGG CCTAGAGTC GACCTGCAGA AGCTTCTAGA GTCCACCTGC AGAAGCTGG CCGCATGGC CCAACTTGT TATTGCAGCT
GCCCATTAC TCACGCTGCC GGCATCTCAG CTGGACGTCT TCGAAGATCT CACTGGACG TCTTCGAACC GCGGTACCG GGTGAACAA ATAACGCTGA
396 GlyLys
^av40 early poly A
maeIII
sfanI apol
rmal
bsmI maeI
2201 TATAATGGT ACAATAAAG CAATAGCATC ACAATTTCA CAATAAAGC ATTTTTCCTA CTGCATTCTA GTTGTGTTT GTCCAAACTC ATCAATGTAT
ATATTACCA TGTATTATTC GTTATCGTAG TGTTTAAAGT GTTTATTTCG TAAAAAAGT GACCTAAGAT CAACACCAA CAGGTTTCAG TAGTTACATA

FIG. 16H

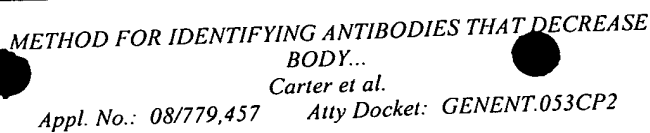


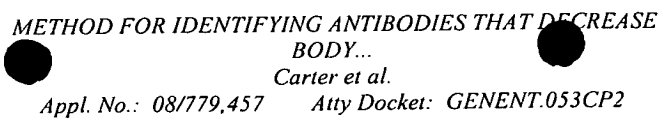
FIG. 16I

[illegible]

FIG. 16J

FIG. 16K

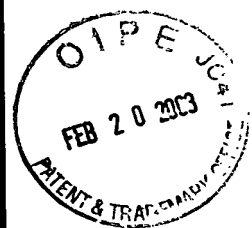
FIG. 16L



Atty Docket: GENENT.053CP2

FIG. 16M

FIG. 16N



4101 CAACCCCAAG GTTCGGGTGA AGGCCAGGCTGCGCAGCCCA ACGTGCGGGC GCGAAGCCCG CCATAGCCAC GGGCCCCGTG GGTTAGGAC GGGTCCCCC
 GTTGGGGTT CAAGCCCACT TCCGGTCCC GAGCGTCGGT TGCAGCCCCG CCGTTCGGC GGTATCGGTG CCGCGGGCAC CCAATCCCTG CCCACAGGGG
 4201 ATGGGGAATG GTTTATGGTT CGTGGGGTT ATTCTTTTGG CGCTTGGCTG GGTTCAGGTC CACGACTGGA CTGAGCAGAC AGACCCATGG TTTTGGATG
 TACCCCTTAC CAAATACCA GCACCCCA TAAGAAACC CGCAAGCAC CCCAGTCCAG GTGCTGACCT GACTGCTCTG TCTGGGTACC AAAAACCTAC
 4301 GCCTGGCAT GGACCGCATG TACTGGCGG ACACGAACAC CGGGCGTCTG TGGCTGCCAA ACACCCCGCA ACACCCCGCG GATTTCTGGC
 CGGACCCGTA CCTGGCGTAC ATGACCGCGC TGTGCTGTG GCCCGCAGAC ACCGAGGTT TGTGGGGCTT GGTGGCGCGC CTAAGACCG

[illegible]

FIG. 16P

fnu4HI
 haeIII/palI
 mcrI
 eagI/xmaIII/ecI XI
 eaeI
 notI
 fnu4HI
 acII
 mcrI bsrBI acII
 sfaNI taqI cfrI sfaNI
 bsrI
 4601 TGACTGGGTT GAAGGCTCTC AAGGCATCG GTCCAGCGC CGCATCAAAG CAACCATAGT ACGGCCCTG TAGCGGCGCA TTAAGCGCG GGGGTGTGTT
 ACTGACCCAA CTTCGGAGAG TTCCCGTAGC CAGCTCGCG CGGTACTTTC GTTGGTATCA TCGCGGGGAC ATCGCCGGGT AATTCGGCGC GCCCACACCA
 ~delta 3
 ~M13 ori
 fnu4HI
 hinPI
 hhaI/cfoI
 thaI
 fnuDII/mvNI
 bstUI
 bsh1236I
 maeIII bsvI maeIII
 4701 GGTACCGCG ACCGTGACCG CTACACTTGC CAGCGCCCTA GCGCCCGCTC CTTTCGCTTT CTTCCTCTCC TTTCTCGCCA CGTTCGCGG CTTTCCCCGT
 CCAATGCGCG TCGCACTGCC GATGTGAACG GTCCCGGAT CCGCGGCGAG GAAAGCGAA GAAAGCGAGT GCAAGCGCGT GCAAGCGCGC GAAAGGGCA
 nlaIV
 hgiJII
 bsp1286
 bmyI
 banII
 aluI
 4801 CAAGCTCTAA ATCGGGGGCT CCCTTTAGG TTCCGATTTA GTGCTTTACG GCACCTCGAC CCCAAAAAC TTGATTTGGG TGATGTTCA CGTAGTGGG
 GTTCGAGATT TAGCCCCCGA GGGAAATCCC AAGGCTAAAT CACGAAATGC CGTGGAGCTG GGGTTTTTTG AACTAAACCC ACTACCAAGT GCATCACCCC
 nlaIV
 hgiJII
 bsp1286
 bmyI
 banII
 aluI
 4901 CATCGCCCTG ATAGACGGTT TTTCCGCCCTT TGACGTTGGA GTCCAGCTTC TTTAATAGTG GACTTTGTT CCAAACTGGA ACACACTCA ACCCTATCTC
 GTAGCGGAC TATCTGCCAA AAGCGGGA ACTGCAACCT CAGGTCCAAG AAATTATCAC CTGACAACAA GGTTCGACCT TGTTCGAGT TGGCATAGAG
 fnu4HI
 haeIII/palI
 mcrI
 eagI/xmaIII/ecI XI
 eaeI
 notI
 fnu4HI
 acII
 mcrI bsrBI acII
 sfaNI taqI cfrI sfaNI
 bsrI
 4601 TGACTGGGTT GAAGGCTCTC AAGGCATCG GTCCAGCGC CGCATCAAAG CAACCATAGT ACGGCCCTG TAGCGGCGCA TTAAGCGCG GGGGTGTGTT
 ACTGACCCAA CTTCGGAGAG TTCCCGTAGC CAGCTCGCG CGGTACTTTC GTTGGTATCA TCGCGGGGAC ATCGCCGGGT AATTCGGCGC GCCCACACCA
 ~delta 3
 ~M13 ori
 fnu4HI
 hinPI
 hhaI/cfoI
 thaI
 fnuDII/mvNI
 bstUI
 bsh1236I
 maeIII bsvI maeIII
 4701 GGTACCGCG ACCGTGACCG CTACACTTGC CAGCGCCCTA GCGCCCGCTC CTTTCGCTTT CTTCCTCTCC TTTCTCGCCA CGTTCGCGG CTTTCCCCGT
 CCAATGCGCG TCGCACTGCC GATGTGAACG GTCCCGGAT CCGCGGCGAG GAAAGCGAA GAAAGCGAGT GCAAGCGCGT GCAAGCGCGC GAAAGGGCA
 nlaIV
 hgiJII
 bsp1286
 bmyI
 banII
 aluI
 4801 CAAGCTCTAA ATCGGGGGCT CCCTTTAGG TTCCGATTTA GTGCTTTACG GCACCTCGAC CCCAAAAAC TTGATTTGGG TGATGTTCA CGTAGTGGG
 GTTCGAGATT TAGCCCCCGA GGGAAATCCC AAGGCTAAAT CACGAAATGC CGTGGAGCTG GGGTTTTTTG AACTAAACCC ACTACCAAGT GCATCACCCC
 nlaIV
 hgiJII
 bsp1286
 bmyI
 banII
 aluI
 4901 CATCGCCCTG ATAGACGGTT TTTCCGCCCTT TGACGTTGGA GTCCAGCTTC TTTAATAGTG GACTTTGTT CCAAACTGGA ACACACTCA ACCCTATCTC
 GTAGCGGAC TATCTGCCAA AAGCGGGA ACTGCAACCT CAGGTCCAAG AAATTATCAC CTGACAACAA GGTTCGACCT TGTTCGAGT TGGCATAGAG

FIG. 16Q

FIG. 16R

Carter et al.

Appl. No.: 08/779,457

Atty Docket: GENENT.053CP2

[illegible]

FIG. 16S



mspl
hpalI
scrFI
aluI nclI
rmaI dsav
mael caulI
TCTACTTAC TCTACTTCC CGGCAACAAT TAATAGACTG GATGGAGCG GATAAGTTG CAGGACCACT TCTGGCTCG GCCCTTCCG CTGGCTGGTT
TTGATGAATG AGATCGAAGG GCGTGTGTA ATTATCTGAC CTACTCTCCG CTATTTCAAC GTCTGTGTA AGACGGAGC CGGGAAGGCC GACCGACCAA

trugI foki
msei bsri
asel/asnl/vsPI mnlI
fokuI
sau96I
avall
asuI
hinPI asuI
hhal/cfoI
hpalI
bglI
sau96I
haeIII/palI
mspl
hpalI

acilI
thai
fnuDI/mvnl
bstUI
bsmAI
nlaIV hphI
gsl/bpmI
AAATCTGGAG CCGGTGAGCG TGGGTCTCGG GGTATCATTTG CAGCACTGGG GCCAGATGGT AAGCCCTCCC GTATCGTAGT TATCTACACG
ATAACGACTA TTTAGACTC GGCCTACTCG ACCCACTCG CCATAGTAA CCGTGTACCC CGGTCTACCA TTCGGAGGG CATAGCATCA ATAGATGTGC

pleI
hinFI
foki
GGCAACTAT GGATGAACGA AATAGACAGA TCGCTGAGAT AGTGCCTCA CTGATTAACC ATTGGTAACT GTCAGACCAA GTTTACTCAT
TCCCTCTCAG TCCGTGTGATA CCTACTTGCT TTATCTGTCT ACCGACTCTA TCCACGGAGT GACTAATTG TAACCATGTA CAGTCTGGTT CAATGACTA

ddeI
sau3AI
mbol/ndeII(dam-) mnlI
dplI(dam+) hgiCI
dplI(dam-) banI
maelII
trugI
msei
nlaIV
sau3AI
mbol/ndeII(dam-)
dplI(dam+) dplI(dam-)
ahallI/draI mael
bstYI/xhoII bstYI/xhoII
msei msei
alwI(dam-) mboII(dam-)
trugI
msei
ahallI/draI
TATGATTTA AACTTTCATT TTTAATTTAA AAGGATCTAG GTGAAGATCC TTTTGTATTA TCTCATGACC AAATCCCTT AACGTGAGTT
TATATGAAT CTACTAAT TTTGACTAA AATTAATTTTCTTAGG AAAAATCTATT AGAGTACTCG TTTTAGGGA TTGCACTCAA

hphI
rmaI
sau3AI
mbol/ndeII(dam-)
dplI(dam+) dplI(dam-)
ahallI/draI mael
bstYI/xhoII bstYI/xhoII
msei msei
alwI(dam-) mboII(dam-)
trugI
msei
ahallI/draI
TATGATTTA AACTTTCATT TTTAATTTAA AAGGATCTAG GTGAAGATCC TTTTGTATTA TCTCATGACC AAATCCCTT AACGTGAGTT
TATATGAAT CTACTAAT TTTGACTAA AATTAATTTTCTTAGG AAAAATCTATT AGAGTACTCG TTTTAGGGA TTGCACTCAA

FIG. 16T



6301 TTGGTTCCAC TGAGCGTCAG ACCCGTAGA AAAGATCAAA GGATCTTCTT TTTCTCGCGC GTAATCTGCT GCTTGCNAAC AAAAAACCA
AAGCAAGGTG ACTCCAGTC TGGGCACTT TTTCTAGTTT CCTAGAGAA CTCTAGGAAA AAAGACCGCG CATTAGACGA CGAACGTTTG TTTTTTGGT

6501 TAGTGATGCC GTAGTTAGGC CACCACTTCA AGAAGTCTGT AGCAGCGCCT ACATACCTCG CTCTGCTAAT CCTGTTACCA GTGGCTGCTG CCAGTGGCGA
ATCACATCGG CATCAATCGG GTGGTGAAGT TCTTGAGACA TCGTGCGCGA TGTATGGAGC GAGACGATTA GGACAATGGT CACCGACGAC GGTCAACCGT

6601 TAAGTCCTGT CTTACCGGGT TGGACTCAAG ACCATAGTTA CCGGATAAGG CCGAGCGGTC GGGCTGAACG GGGGTTGCTG GCACACAGCC CAGCTTGGAG
ATTCAGCACA GAATGGCCCA ACCTGACTTC TGCTATCAAT GGCCTATTCC GCGTCCGCGC CCGACTTGC CCGCAAGCA CGTGTGTGGG GTCAACCTC

6301 TTGGTTCCAC TGAGCGTCAG ACCCGTAGA AAAGATCAAA GGATCTTCTT TTTCTCGCGC GTAATCTGCT GCTTGCNAAC AAAAAACCA
AAGCAAGGTG ACTCCAGTC TGGGCACTT TTTCTAGTTT CCTAGAGAA CTCTAGGAAA AAAGACCGCG CATTAGACGA CGAACGTTTG TTTTTTGGT

6501 TAGTGATGCC GTAGTTAGGC CACCACTTCA AGAAGTCTGT AGCAGCGCCT ACATACCTCG CTCTGCTAAT CCTGTTACCA GTGGCTGCTG CCAGTGGCGA
ATCACATCGG CATCAATCGG GTGGTGAAGT TCTTGAGACA TCGTGCGCGA TGTATGGAGC GAGACGATTA GGACAATGGT CACCGACGAC GGTCAACCGT

6601 TAAGTCCTGT CTTACCGGGT TGGACTCAAG ACCATAGTTA CCGGATAAGG CCGAGCGGTC GGGCTGAACG GGGGTTGCTG GCACACAGCC CAGCTTGGAG
ATTCAGCACA GAATGGCCCA ACCTGACTTC TGCTATCAAT GGCCTATTCC GCGTCCGCGC CCGACTTGC CCGCAAGCA CGTGTGTGGG GTCAACCTC

FIG. 16U



```

mspi      hinPI      ddel      scfI      scrFI      hinPI      mspI      fnu4HI
hpaII     hhaI/cfoI  haeII     hhaI/cfoI  mvaI      hpaII     bslI      acII
bsaWI     bsaWI     acII      bsaWI     ecorII    bsaWI     bsaWI     acII
6701 CGAAGGACCT ACACCGAACT GAGATACCTA CAGCGTGAGC ATTGAGAAAG CGCCACGCTT CCGGAAGGGA GAAAGCGGGA CAGGTATCCG GTAAGCGGGA
GCTTGCTGGA TGTGGCTTGA CTCTATGGAT GTCCGACTCG TAACCTTTTC GCGGTGCGAA GGGCTTCCCT CTTTCCGCTT GTCCATAGGC CATTCGCCCT

          scrFI      mvaI      ecorII    dsav      bstNI     bsaJI     aluI      apyI[dcmt]
          dsav      bstNI     bsaJI     apyI[dcmt+]
          hinPI    mnlI      aluI      apyI[dcmt]
          hhaI/cfoI  acII      apyI[dcmt+]
6801 GGTGCGGAAC AGGAGAGCGC ACGAGGAGC TTCCAGGGGG AAACGCGCTGG TATCTTTATA GTCCTGTGCGG GTTTCGCCAC CTCTGACTTG AGCGTCGATT
CCCAGCCTTG TCCTCTCGCG TGCTCCCTCG AAGCTCCCCC TTTCGGGACC ATAGAAATAT CAGGACAGCC CAAAGCGGTG GAGACTGAAC TCGCAGCTAA

          aluI      nlaIV     acII      sfanI      mnlI      drdI      hgaI      taqI
          pvuII    nspBII    acII      acII      acII      acII      acII      acII
          tru9I    msel      hinPI     hhaI/cfoI  aseI/asnI/vspI
          nlaIV     acII      acII      acII      acII      acII      acII      acII
6901 TTTGTGATCC TCCTCAGGGG GCGGAGGCTT ATGGAANAAC GCCAGCTGCC ACGACAGGTT TCCGACTGG AAAGCGGGA GTGAGCGGAA CGCAATTAAT
AAACACTAGC AGCAGTCCCG CCGCCTCGGA TACCTTTTGG CCGTCGACCG TGCTGTCCAA AGGGCTGACC TTTCGCCGCT CACTCGCGTT CCGTTAATTA

          scrFI      mvaI      ecorII    dsav      nlaIV     bstNI     hglCI    apyI[dcmt+]
          hglCI    apyI[dcmt+]  bsaJI     bsaJI     bsaJI     bsaJI     bsaJI     bsaJI
          mspI      hpaII     acII      bsrBI
7001 GTGAGTTACC TCACTCANTA GGCACCCGAG GCTTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT CACACAGGAA
CACTCAATGG AGTGAGTAAT CCGTCGGGTC CGAAATGTGA AATACGAAGG CCGAGCATAC AACACACCTT AACACTCGCC TATTGTTAAA GTGTGTCCTT

          tru9I    msel      aseI/asnI/vspI
          xmiI     asp700
          aluI     nlaIII
8101 ACAGCTATGA CCATGATTAC GAATTAA
TGTCGATAC GTACTAATG CTTAAT

>length: 7127
```

FIG. 16V

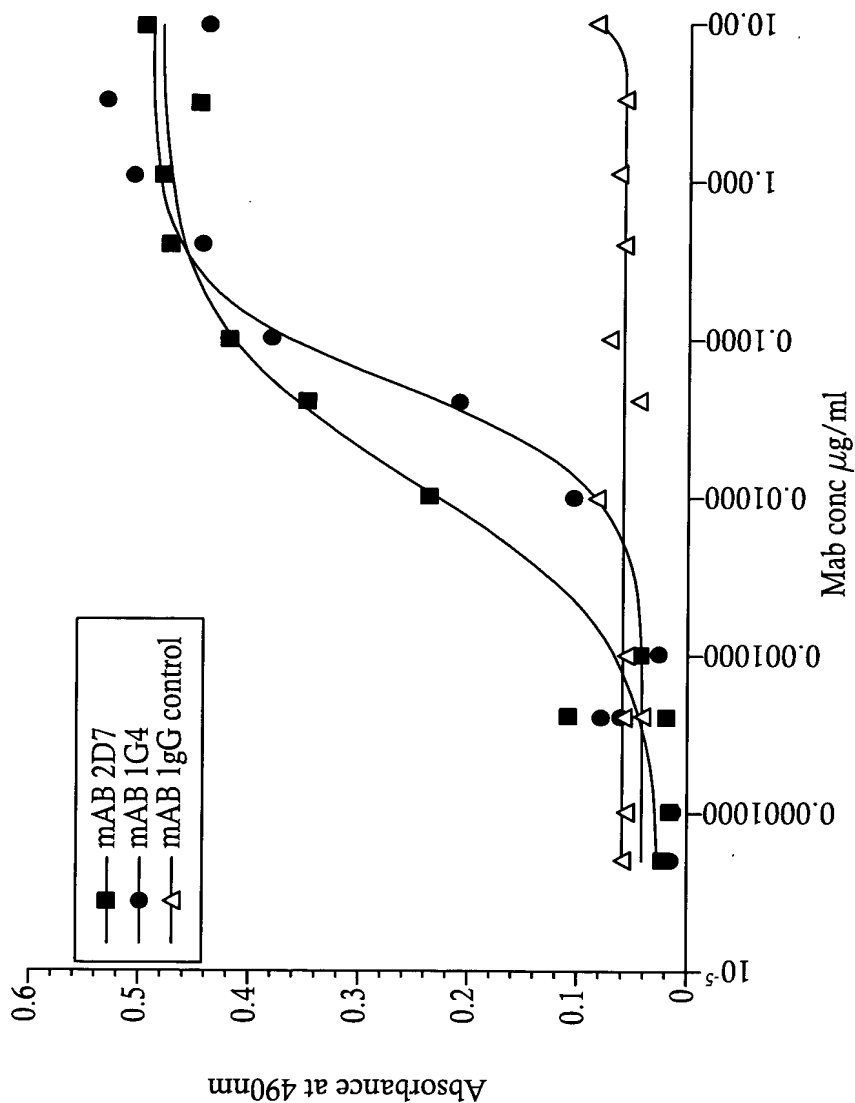
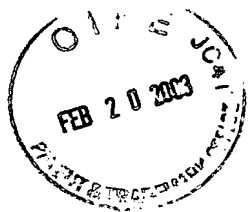


FIG. 17

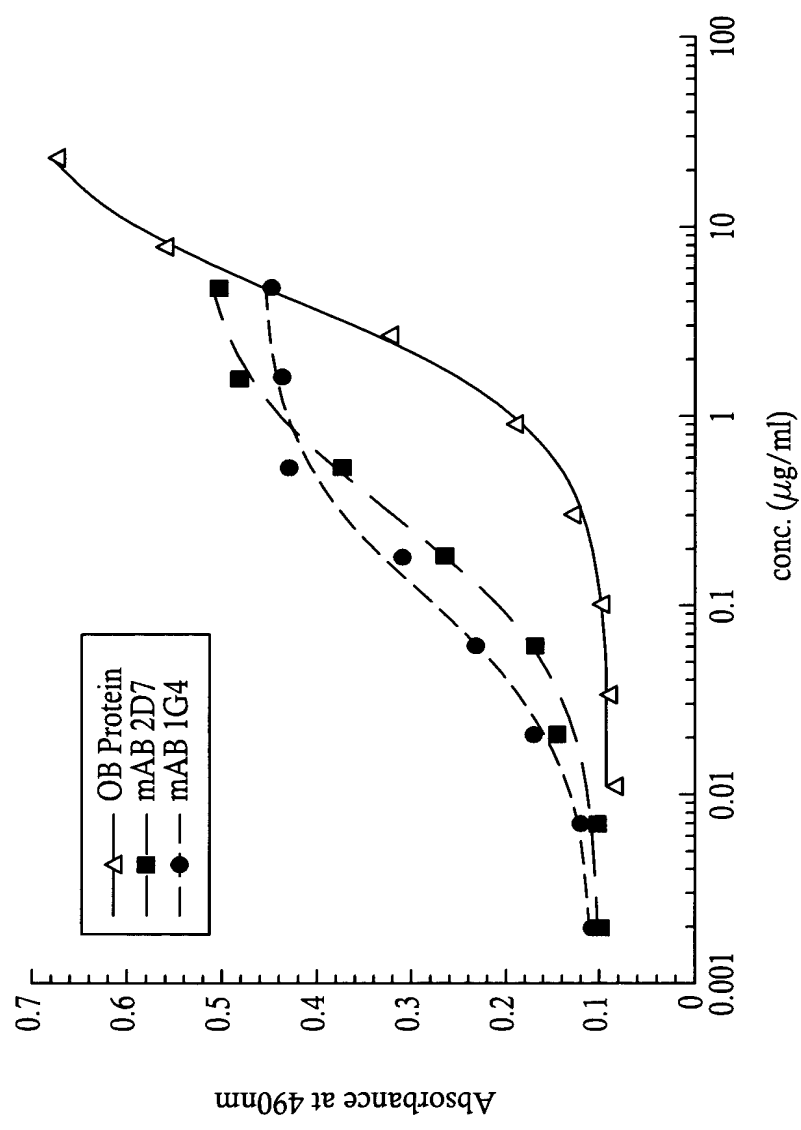


FIG. 18

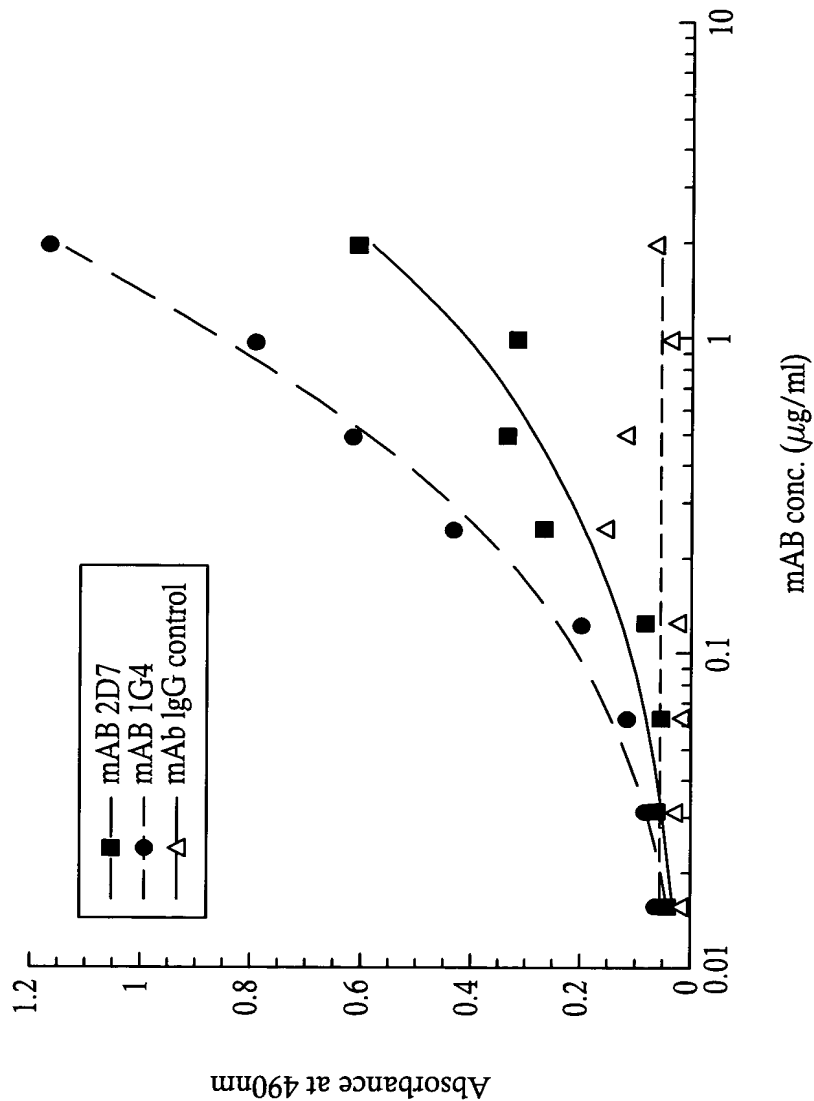


FIG. 19

OFFICE
FEB 20 2003
PATENT & TRADEMARK

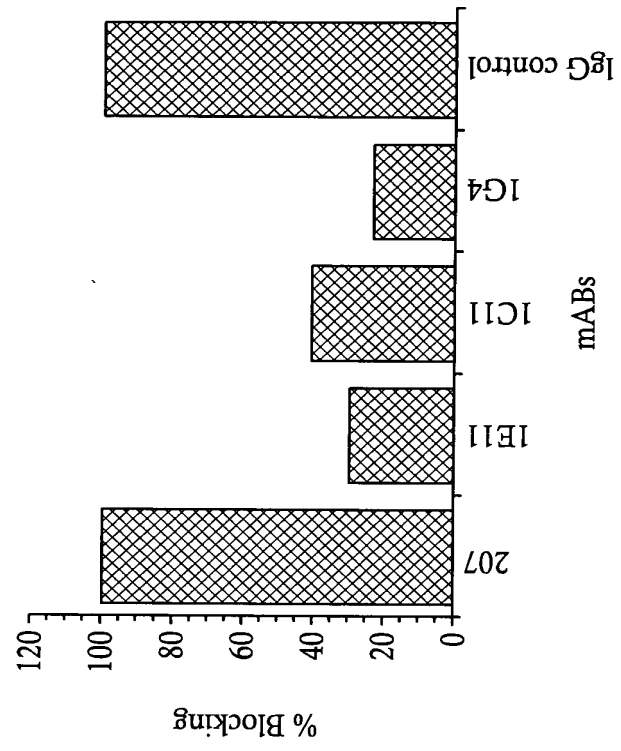


FIG. 20B

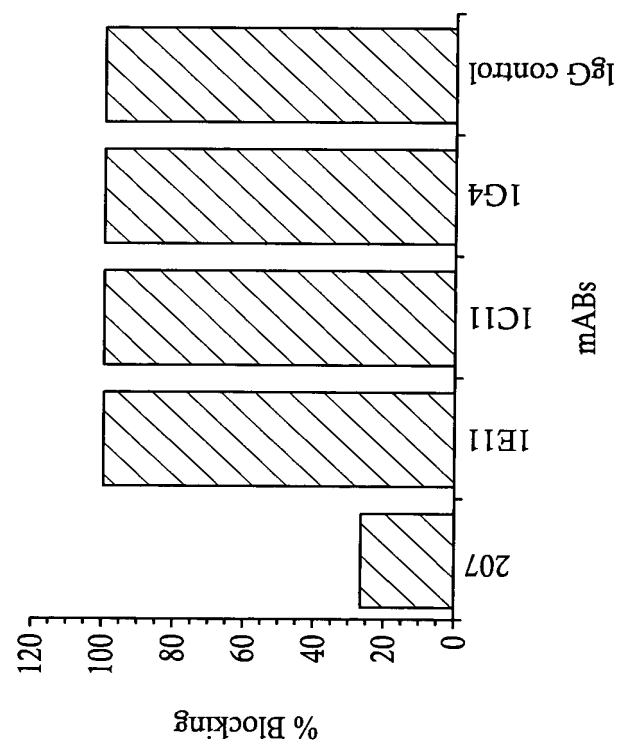
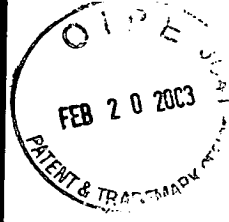


FIG. 20A



METHOD FOR IDENTIFYING ANTIBODIES THAT DECREASE
BODY...

Carter et al.

Appl. No.: 08/779,457

Atty Docket: GENENT.053CP2

hWSXR 1 M I C Q K F C V V L L H W E F I Y V I T A F N L S Y P I T P W R F K L S C M P P N S T Y D Y F L L P
mWSXR 1 M M C Q K F Y V V L L H W E F L Y V I A A L N L A Y P I S P W K F K L F C G P P N T T D D S F L S P

51 A G L S K N T S N S N G H Y E T A V E P K F N S S G T H F S N L S K T T F H C C F R S E Q D R N C S
51 A G A P N N A S A L K G A S E A I V E A K F N S S G I Y V P E L S K T V F H C C F G N E Q G Q N C S

101 L C A D N I E G K T F V S T V N S L V F Q Q I D A N W N I Q C W L K G D L K L F I C Y V E S L F K N
101 A L T D N T E G K T L A S V V K A S V F R Q L G V N W D I E C W M K G D L T L F I C H M E P L P K N

151 L F R N Y N Y K V H L L Y V L P E V L E D S P L V P Q K G S F Q M V H C N C S V H E C C E C L V P V
151 P F K N Y D S K V H L L Y D L P E V I D D S P L P P L K D S F Q T V Q C N C S L R G - C E C H V P V

201 P T A K L N D T L L M C L K I T S G G V I F Q S P L M S V Q P I N M V K P D P P L G L H M E I T D D
200 P R A K L N Y A L L M Y L E I T S A G V S F Q S P L M S L Q P M L V V K P D P P L G L H M E V T D D

251 G N L K I S W S S P P L V P F P L Q Y Q V K Y S E N S T T V I R E A D K I V S A T S L L V D S I L P
250 G N L K I S W D S Q T M A P F P L Q Y Q V K Y L E N S - T I V R E A A E I V S A T S L L V D S V L P

301 G S S Y E V Q V R G K R L D G P G I W S D W S T P R V F T T Q D V I Y F P P K I L T S V G S N V S F
299 G S S Y E V Q V R S K R L D G S G V W S D W S S P Q V F T T Q D V V Y F P P K I L T S V G S N A S F

351 H C I Y K K E N K I V P S K E I V W W M N L A E K I P Q S Q Y D V V S D H V S K V T F F N L N E T K
349 H C I Y K N E N Q I I S S K Q I V W W R N L A E K I P E I Q Y S I V S D R V S K V T F S N L K A T R

401 P R G K F T Y D A V Y C C N E H E C H H R Y A E L Y V I D V N I N I S C E T D G Y L T K M T C R W S
399 P R G K F T Y D A V Y C C N E Q A C H H R Y A E L Y V I D V N I N I S C E T D G Y L T K M T C R W S

451 T S T I Q S L A E S T L Q L R Y H R S S L Y C S D I P S I H P I S E P K D C Y L Q S D G F Y E C I F
449 P S T I Q S L V G S T V Q L R Y H R S S L Y C P D S P S I H P T S E P K N C V L Q R D G F Y E C V F

501 Q P I F L L S G Y T M W I R I N H S L G S L D S P P T C V L P D S V V K P L P P S S V K A E I T I N
499 Q P I F L L S G Y T M W I R I N H S L G S L D S P P T C V L P D S V V K P L P P S N V K A E I T V N

551 I G L L K I S W E K P V F P E N N L Q F Q I R Y G L S G K E V Q W K M Y E V Y D A K S K S V S L P V
549 T G L L K V S W E K P V F P E N N L Q F Q I R Y G L S G K E I Q W K T H E V F D A K S K S A S L L V

601 P D L C A V Y A V Q V R C K R L D G L G Y W S N W S N P A Y T V V M D I K V P M R G P E F W R I I N
599 S D L C A V Y V V Q V R C R R L D G L G Y W S N W S S P A Y T L V M D V K V P M R G P E F W R K M D

651 G D T M K K E K N V T L L W K P L M K N D S L C S V Q R Y V I N H H T S C N G T W S E D V G N H T K
649 G D V T K K E R N V T L L W K P L T K N D S L C S V R R Y V V K H R T A H N G T W S E D V G N R T N

701 F T F L W T E Q A H T V T V L A I N S I G A S V A N F N L T F S W P M S K V N I V Q S L S A Y P L N
699 L T F L W T E P A H T V T V L A V N S L G A S L V N F N L T F S W P M S K V S A V E S L S A Y P L S

751 S S C V I V S W I L S P S D Y K L M Y F I I E W K N L N E D G E I K W L R I S S S V K K Y Y I H D H
749 S S C V I L S W T L S P D D Y S L L Y L V I E W K I L N E D D G M K W L R I P S N V K K F Y I H D N

801 F I P I E K Y Q F S L Y P I F M E G V G K P K I I N S F T Q D D I E K H Q S D A G L Y V I V P V I I
799 F I P I E K Y Q F S L Y P V F M E G V G K P K I I N G F T K D A I D K Q Q N D A G L Y V I V P I I I

851 S S S I L L L G T L L I S H Q R M K K L F W E D V P N P K N C S W A Q G L N F Q K R T D I L
849 S S C V L L L G T L L I S H Q R M K K L F W D D V P N P K N C S W A Q G L N F Q K R T D T L

FIG. 21

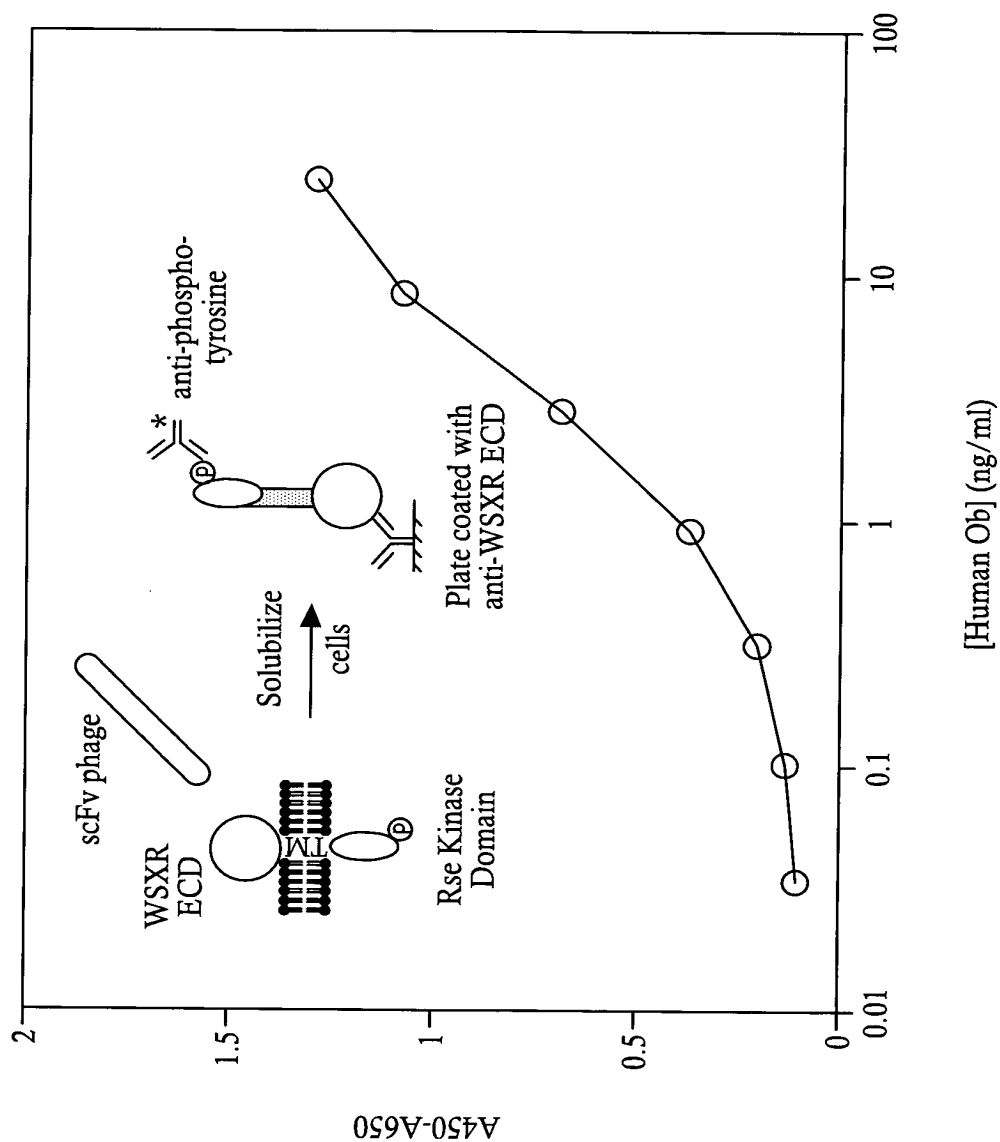


FIG. 22

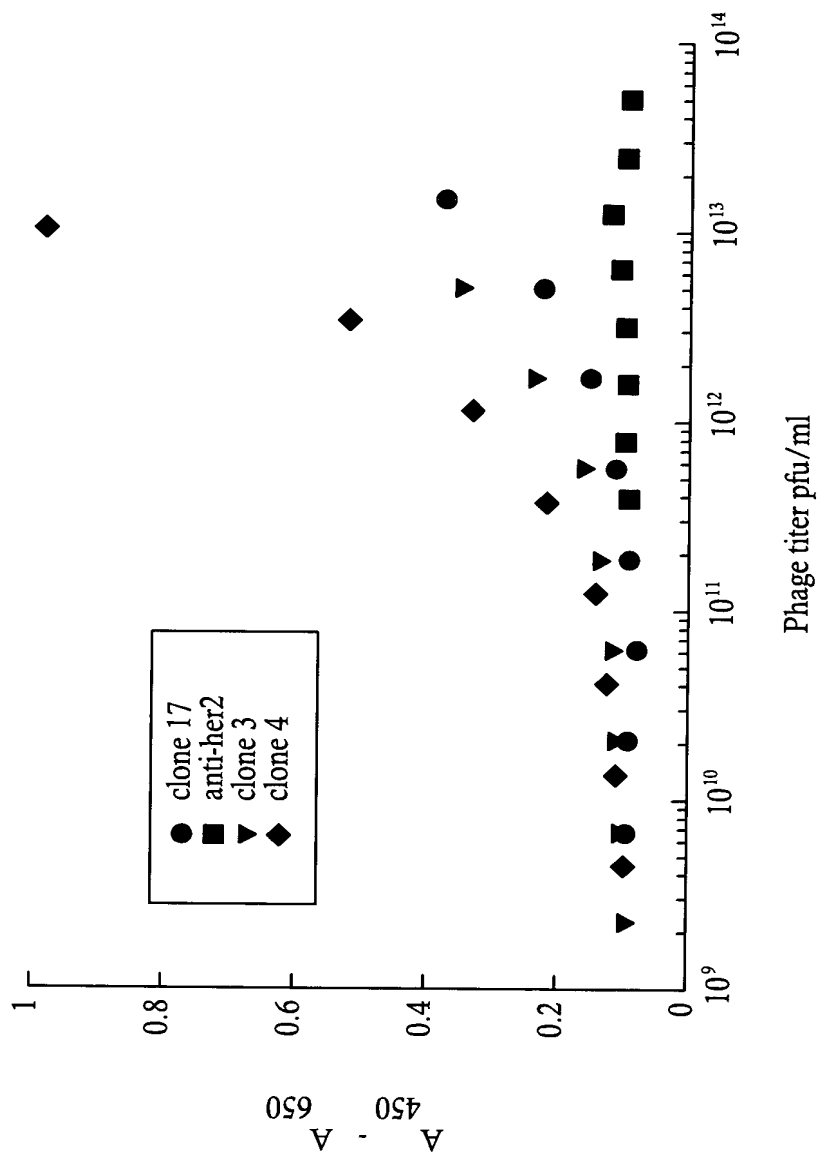
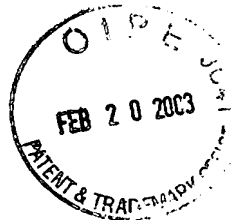


FIG. 23

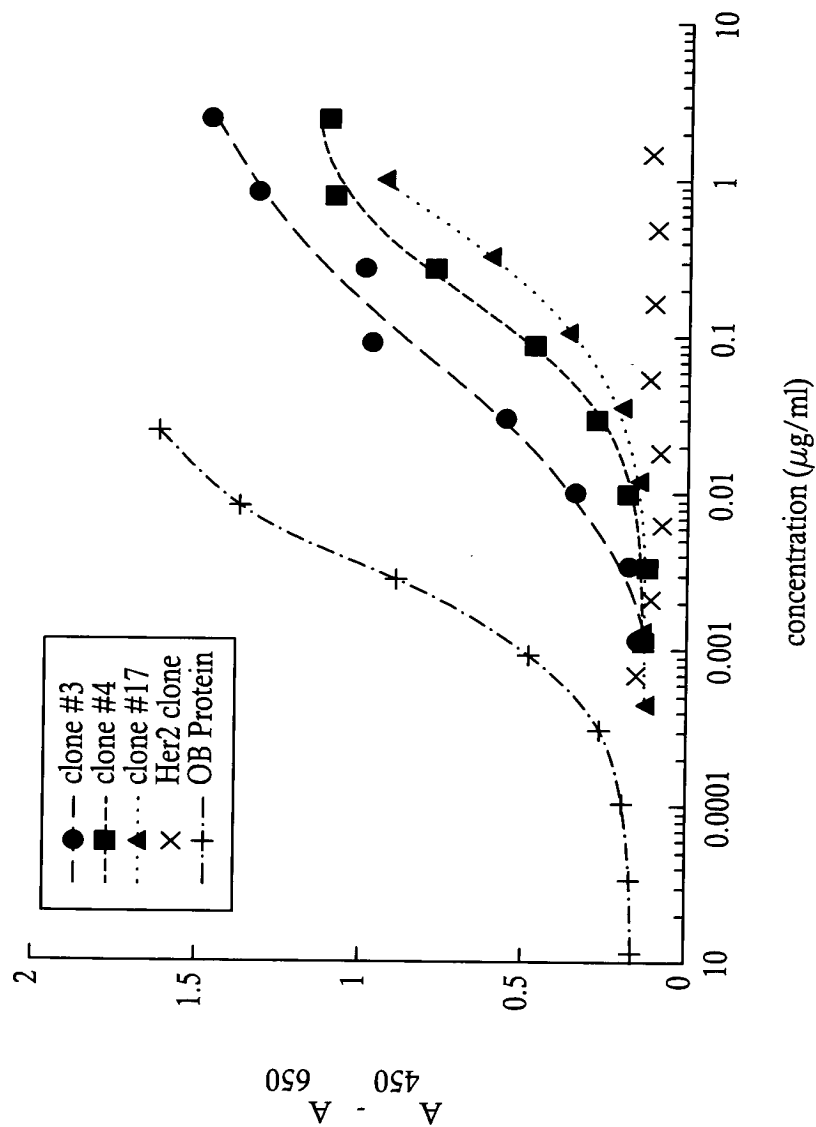


FIG. 24



17.scfv	1	<u>QVRLQQSGGGLVQPGRSLRLSCAASGRFTDDYAMHWVRQAPGKGLEWVSG</u>
3.scfv	1	<u>EVQLVQSGAEVKKPGASVKVSCASGYTFTGYMYWVRQAPGQGLEWMGW</u>
4.scfv	1	<u>EVQLVQSGAEVKKPGESLKISCQSGFTFSYKMNWVRQAPGKGLEWMGG</u>
CDR H1		
17.scfv	51	<u>MTWNSGSIGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTAVYYCAREP</u>
3.scfv	51	<u>INPNSGGTNYAOKFOGRVTMTRDTSIGTAYMELSRSSDDTAVYYCARDR</u>
4.scfv	51	<u>IIPIFGTANYAOKFOGRVTITADESTSTAYMELSSLRSED TAVYYCARDR</u>
CDR H2		
17.scfv	101	<u>HNTDA-----FDI</u> WGRGTLVTVSSGGGGPGGGGSGGGGSDVVM TQSP
3.scfv	101	<u>YYGSSAYHRGSYMDVWGRGTLVTVSSGGGGTGGGGSGGGGS</u> -SELTQDP
4.scfv	101	<u>VVVPATSLRGG--MDVWGQGT</u> TVTVSSGGGGSGGGGSGGGGSQSVLTQPA
CDR H3		
17.scfv	143	<u>SFLSAFVGDTITITICRASO---</u> GIYNYLAWYQQKPGKAPKLLIYAASTLO
3.scfv	150	A-VSVALGQTVRITC <u>OGDS--LRSY-YASWYQQKPGQAPVLVIYGKMNRP</u>
4.scfv	149	S-VSGSPGQSITISCTG <u>TSSDVGGYNYVS</u> WYQQHPGKAPKLM IYEGSKRP
CDR L1 CDR L2		
17.scfv	190	<u>SGVPSRFSGSGSGTEFTLT</u> ISSLQPEDFGTYYC <u>OO LI--SYPLT</u> FGGG TK
3.scfv	196	<u>SGIPDRFSGSSSGNTASLTITGAQA</u> EDEADYYC <u>NSRDSSGNHW</u> FGGG TK
4.scfv	198	<u>SGVSNRFSGSKSGSTASLTISGLQA</u> EDEADYYC <u>SSYTTRSTR</u> -VFGGG TK
CDR L3		
17.scfv	238	VEIK
3.scfv	246	LTVL
4.scfv	247	LTVL

FIG. 25